

## ARCHIVES OF OTOTOLOGY.

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A CASE OF MASTOIDITIS IN AN INFANT OF ONE AND A HALF YEARS, WITH A SEQUESTRUM CONSISTING OF A LARGE SEGMENT OF THE PETROUS PORTION OF THE RIGHT TEMPORAL BONE. REMOVAL OF THE SEQUESTRUM AND STAPES. RECOVERY.

By WILLIAM C. BRAISLIN, M.D.,

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This child, the infant son of a Brooklyn postman, was referred to my clinic at the Eye and Ear Hospital by the physician who had already determined the presence of dead bone in the auditory canal.

This baby was emaciated and anæmic to an extreme degree; the lymphatics of the neck were enormously swollen and the general appearance of the child was that of a marasmic infant. It had a loose, rattling cough. Both ears were discharging thick, yellow pus, the right ear more profusely. In the right ear, dead bone could be detected with the probe along the upper part of the canal and inward to the middle ear. The child was placed in the children's ward with directions to syringe the ear thoroughly every two hours and to improve the nutrition by tonics and medication. It was listless and apathetic, and even when the ear was examined pressure about the ear did not cause it to cry. The discharge from the right ear was so abundant that, even with the short intervals between the time of cleansing, it collected in the concha and ran down the neck.

On the fifth day in the hospital the child was brought to the operating-room, and as a preliminary to performing a radical mastoid operation the ear was again thoroughly explored. This after the rigorous cleansing during the previous few days was comparatively easy. The necrosed bone was in the form of loose sequestra, slightly movable under the probe; the middle-

ear cavity was nearly filled with exuberant granulations. The child did not complain during the exploratory manipulation of the ear, and seemed to feel no discomfort when the sequestrum was grasped by the forceps and traction exerted. The sequestrum was quite freely movable, and its size was not appreciable owing to its upper portion being hidden by the overlapping soft parts of the orifice of the superior meatus. As the child seemed to suffer but little from the operation, and also because the complicating bronchitis rendered it desirable to avoid an anæsthetic if possible, the removal of the sequestrum was undertaken without one.

The large sequestral mass was therefore extracted through the meatus. A Hartmann's forceps was used to grasp the loose bony fragment, and its extraction was accomplished without difficulty. The meatus was torn slightly at its upper periphery. Several other small fragments of necrosed bone were also removed. Dark necrotic granulations were found to cover the outer surface of the dura and walls of the large cavity thus exposed. Necrotic material and shreds of foul pus were now syringed away with irrigation of bichloride of mercury solution. The dura mater was exposed over a considerable area, but search with a probe failed to discover any perforation through it, and it was regarded as intact.

No dressing was applied, but repeated irrigations of 1:10,000 bichloride solution were ordered with the patient recumbent to prevent the solution from running through the Eustachian tube in any considerable quantity.

A week later, while probing the mass of granulations lining the middle-ear cavity, a small bare spot of bone was encountered. This was the crus of the stapes, and on grasping it the stapes was readily removed from its bed in the foramen ovale.

Subsequent treatment consisted in syringing with boric-acid solution, occasionally touching the granulations lightly with nitrate-of-silver solutions ( $\frac{1}{4}$  to  $\frac{1}{2}$  saturation), the administration of cod-liver oil emulsion and other tonics.

The left ear, which had no necrotic process, was treated, with the exception of the operative measures, much like the right, but was about a week later in completing the healing process.

In the right ear, the drum membrane was re-formed in about twelve weeks; the left, in about thirteen weeks. After the removal of necrosed bone from the ear, the subsidence of the

lymphatic swelling was as surprisingly rapid as was the increase in weight and nutrition of the patient.

The large sequestrum is a pyramidal piece of bone, three-sided, its base representing the outer cortex of the mastoid; its apex (detached) containing about one-quarter (the upper and posterior segment) of the annulus tympanicus. It represents the entire bony framework between the auditory canal and tympanic cavity below and the dura above. The smaller fragments represent portions of the mastoid.

## TWO ANATOMICAL ANOMALIES ENCOUNTERED IN LIVING SUBJECTS DURING THE PER- FORMANCE OF MASTOID OPERATIONS.

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### **I.—Hiatus of large size in the cortex of the mastoid, opening directly into the mastoid cells.**

Patient is a Danish girl, twenty-eight years of age, who came to the Brooklyn Eye and Ear Hospital for the relief of earache and mastoid tenderness. She had suffered from a previous attack somewhat similar to this, four years before, the exact character of which she could not clearly describe. She was in a general hospital on that occasion; no operation was performed on the mastoid itself, but a great mass of (probably) enlarged cervical glands on the same side of the neck persisted, and this condition was relieved by operation at that time. Since, she has had several attacks of earache, accompanied by pain behind the ear and tenderness to the touch.

The pain of the present attack has lasted about three weeks. For some days it has been nearly continuous, and at times very severe. Some discharge occurred early, but has now nearly ceased. Tympanic membrane partly cicatricial; a small attic perforation present. The mastoid prominent, somewhat œdematous, and very sensitive to even light pressure. Temperature, after entering hospital, showed a typical, irregular, septic course. A prominent scar extended from a point an inch below the tip of the mastoid, along the border of the sterno-mastoid muscle almost to the clavicle. No scar existed over mastoid bone.

The patient was placed in the wards, and, the symptoms per-



sisting and the temperature chart revealing the above-mentioned irregularity, operation was performed three days later. Previous to the incision, the probability of its being a Bezold's mastoiditis was expressed. The peculiarity of the case was noted on exposing the periosteum. What appeared at first a large, dark, necrosed area proved on incising the periosteum to be a natural fissure leading into large cells, containing but little fluid. The fissure was three-quarters of an inch long by a quarter broad at its greatest diameter. It lay in the line of the masto-squamosal suture, the hiatus in its long axis running parallel with the posterior border of the external meatus, from which it lay about half an inch, extending downward half way to the mastoid tip. The cells were ablated, antrum entered, and wound packed.

This peculiarly large hiatus seemed to have been responsible for the two unusual particulars in which this case differed from an ordinary attack of mastoiditis.

1. The first attack, four years ago, apparently manifested itself chiefly in an involvement of the cervical lymphatics of the same side of the neck. Marked inflammation of these glands was no doubt due to the fact that extension of pus through the open bone was readily allowed, giving rise to early involvement of the cervical lymphatics, so extensive as to require their thorough removal.

2. The present attack presented the rather unusual history of *gradually increasing* pain and a septic temperature more pronounced in degree than the severity of the mastoid disease, as disclosed at the operation, would naturally occasion. An incompetent resistance to septic absorption due to the absence of the (previously removed) cervical lymphatics probably accounted for this phenomenon.

Defective closure of the masto-squamous suture often results in early sub-periosteal abscess of the mastoid (Macewen).

Macewen figures two cases (*Pyogenic Infective Diseases of the Brain and Spinal Cord*, Glasgow, 1893, oppo. pp. 10 and 12), neither, however, approaching the extent of the hiatus in the case just described. Cases of open masto-squamosal suture are more common in early life, but the possibility of their occurrence in adults may be borne in mind.

**II.—Unusual depth of the supra-meatal depression in the triangle of Macewen.**

The depression, usually found just above the upper posterior portion of the bony wall of the meatus in the triangle of Macewen, is ordinarily insignificant, often lacking; sometimes its normal site is occupied by a slight projection.

In operating for acute mastoiditis in a tall, spare young man of twenty-one years, a depression fully  $\frac{1}{8}$  of an inch deep was disclosed in this space. It stopped short of the mastoid antrum. Its depth was bounded by firm bone.

## SOME MOOTED POINTS IN THE TREATMENT OF PROTRACTED CASES OF ACUTE MIDDLE- EAR DISEASES AND THEIR COMPLICATIONS.<sup>1</sup>

By ALFRED WIENER, M.D.

THE result of an experience in the treatment of a class of cases, a report of which was made before the Metropolitan Society of this city a short time ago, with the apparent lack of risk which this treatment assured, has persuaded me to present this subject for discussion before this Society. There still appears to exist a great difference of opinion amongst otologists when the proper time has arrived for radical interference, in a class of cases which I shall refer to in this paper.

The report above referred to was based upon an observation of twenty-two cases. They were classified under the title of protracted forms of acute purulent middle-ear disease with complications. In order not to weary you with the histories in detail, the typical picture represented by these cases, in brief, was the following :

The presence of a continued discharge in an ear for two or three weeks, after various forms of infection including influenza, scarlet fever, diphtheria, measles etc., the sudden appearance of an acute exacerbation attended either by a gradual or rapid rise of temperature, with pain on pressure over the apical and antral regions, reddening and bulging of the posterior and superior portions of the tympanic membrane and canal, with more or less obliteration of the distinctive landmarks of the drum membrane. A small

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<sup>1</sup> Read before the Otological Section at the Academy of Medicine, February 9, 1905.

perforation existed in some of the cases and in others none could be found. In the majority of these cases after the secretion was wiped away, varying remnants could still be drawn into the canal with Siegel's speculum. It was felt that in these cases, in addition to the middle ear, the antrum had also been invaded and had complicated the picture. In regard to the mastoid, a doubtful opinion was expressed, viz., as to whether there was simply a congestion or the beginning formation of an abscess. This was left for the treatment to decide.

The treatment which was employed in these cases had for its object thorough drainage through the external auditory meatus, combined with antiphlogistic measures. First, a liberal incision was made extending through the posterior superior portion of the external auditory meatus, and posterior superior and inferior quadrants of the drum. This was followed by a thorough politzeration and aspiration with Siegel's speculum. The secretion was carefully wiped away, and a drain of half-inch strip iodoform gauze, dipped into a ten per cent. solution of liquor aluminii acetatis, was placed in the canal to facilitate drainage, and at the same time to exert its antiphlogistic influence upon the œdema present. This was covered with an occlusive dressing wet with the same solution and a bandage applied. It was changed once or twice a day as was found necessary. In addition to this, strict attention was paid to the constitutional treatment, in giving the proper amount of nourishment and tonics if necessary. In all the cases treated, constant observation was insisted upon and the local treatment to be carried out by a competent attendant. This was considered a very important part of the treatment, for in this way only could the presence of any unfavorable symptoms be at once recognized and the proper treatment carried out. If after such treatment there was a persistence of the initial symptoms, or the sudden appearance of those symptoms which we at once recognize as serious, operative interference was at once advised. Up to the present time, with a record of forty-two cases of this type, four cases demanded operative treatment. In all these cases the patient

was given the chance of conservative measures. Of the four cases which were operated upon three recovered, and one died, undoubtedly from the consequences of the primary infection, diphtheria. It was while following out this plan of treatment that two questions constantly and vividly presented themselves to me for consideration. I hope that these questions will bring forth the discussion which they deserve.

The questions above referred to are the following:

(1) Under what condition can we pursue conservative measures without endangering the life of the patient?

(2) Does early operative interference prevent the occurrence of serious complications in this class of cases?

In regard to the first question, I believe that conservatism practised under the strict precautions mentioned, viz., "constant and competent observation," is practically devoid of danger. As soon as we have convinced ourselves that the persistence of the symptoms present precludes the success of this treatment, or we notice the occurrence of unfavorable symptoms, then there should no longer be any hesitation in radical interference. The presence, in an acute exacerbation of a protracted case, of such symptoms as a temperature of 104 degrees, with tenderness to pressure over the antrum and mastoid regions of the temporal bone, with bulging of the posterior superior quadrant of the tympanic membrane and oedema of the neighboring portion of the external auditory meatus, a small perforation, and discharge within the canal, should not at once persuade us to open the mastoid. How frequently such symptoms will disappear after thorough drainage and antiphlogistic measures have been employed, as above mentioned, I am sure most of us will acknowledge. It is incumbent upon us to give the patient this fair trial, and it then remains for us to observe whether such improvement will continue.

Of the forty-two cases observed under this plan of treatment, eleven were beyond the age of four years. I purposely refer to the age of these patients, because the structure of the temporal bone in children below the age of four differs very much from that of the adult. "In the



newly born, the antrum is the only pneumatic space present in the mastoid bones situated behind the tympanum, and—what I wish to lay especial emphasis upon—at a higher level. A cellular mastoid at this time does not exist. These cells in the mastoid do not develop until the period between the second and third years. According to Schwartze and Eysell, these cells, when they do develop, are arranged in a typical manner radiating toward the antrum. This arrangement in the adult is seldom recognizable, partly through the formation of new osseous septa, and partly through the disappearance of those already formed"—(Politzer). It will at once be seen that the anatomical structure in children is a very advantageous one, assisting very materially in our efforts at drainage. The four cases which did not respond to treatment were beyond the age of twelve years. It does seem, taking all things into consideration, that the child under four years of age will bear conservative measures much better than the older child. A much larger experience is necessary, however, to determine this point.

The brief history of the following case is that of one of the four cases out of the forty-two, above mentioned, which eventually underwent an operation, after conservative measures had been given a fair trial. As it illustrates in a manner to what extent conservative measures may be employed, it may be of interest to relate it.

A young girl, sixteen years of age, had just recovered from an attack of tonsillitis. She began to complain of pain in her right ear, and I was asked to see the case. During the first twenty-four hours there was the distinctive evidence of an acute otitis media. On the second day, this was attended by so much pain together with redness and bulging of the drum that a paracentesis was performed. A gauze drain with an occlusive wet dressing and bandage was applied. The next day the patient felt very much better. The discharge was free and the bulging considerably less. The temperature was 99°. For ten days this patient did very well; the treatment during all this time consisted in simple cleansing measures. Suddenly, on the twelfth day, there was a sudden rise of temperature to 102° with a return of



pain in the ear. There was pain on pressure over the antrum and tip of the mastoid process. The drum was bulging over the posterior superior quadrant, and the adjacent portion of the external canal was oedematous. There was a slight discharge within the canal. With a Siegel's speculum more was obtained from behind the tympanic membrane. The impression gained was that, in addition to the purulent middle-ear disease, there was, due either to insufficient drainage or to a further invasion of the disease, an involvement of the antrum and mastoid process. Although an opinion had been expressed that interference was a wise procedure, but not urgent, I was inclined to give the patient another chance. The argument was offered that as these parts were probably only in a state of congestion, and as it was too early for an abscess to have as yet formed, I would prefer to pursue the plan which has been so successful in similar cases. A second paracentesis was to be made, followed by aspiration, gauze drain, wet dressing, etc. This was accepted and carried out. The patient improved to such an extent that after four days a consultation was held and it was decided that no interference was necessary. The treatment of thorough cleansing with aspiration gauze drainage and wet dressing, occasional syringing with 2 % lysol, was carried out, until the patient was up and about. Her appetite was good, her rest at night undisturbed, and she suffered no pain whatsoever, either spontaneous or on pressure. For three weeks this patient did very well. The discharge was scarcely preceptible. Suddenly one morning there was noticed a slight bulging of the posterior superior portion of the canal and drum membrane. On aspiration there was a slight discharge, tinged with blood. That evening the temperature rose to 101°. The mastoid again became tender on pressure. The next morning there were nausea, slight vertigo, spontaneous pain, and fulness in the mastoid process. Operation was at once advised and performed on the afternoon of that day. I found the mastoid cells at the tip and middle portion filled with a purulent secretion. As I approached the antrum, a broken-down mass of cells, granulations, and pus was encountered. The sinus was laid bare but found perfectly healthy. The dura was exposed over the middle fossa with negative findings. The greater part of the trouble appeared to exist in the neighborhood of the antrum. The usual dressings were applied, removed after the sixth day, changed after the eighth

day, when it was found that the middle ear had ceased to discharge. The wound after five weeks is almost healed.

Considering for a moment the plan of treatment in this case, I believe the point of discussion will rest upon whether interference should have been insisted upon at the time of the second paracentesis. The arguments which I have to offer against such interference are, that at the time no positive diagnosis could be made in regard to the actual pathological condition in the mastoid, that there were no urgent symptoms warranting any interference, that experience has taught us that we often meet with pain on pressure over the antrum and mastoid regions which disappears in these cases after twenty-four to forty-eight hours, and is simply to be explained on the hypothesis of congestion. Furthermore, it has been my experience that relief can often be brought about through the means of thorough drainage as hinted at above. I thought it no more than justice to this patient to give this method a fair trial. Furthermore, another argument against early interference in a case of this kind, as has been proven in similar cases, when the abscess has not as yet formed, is the fact that it makes it very difficult for us to decide during the operation just what and what not to take away. Politzer states that the experience of the last few years has taught him, that in many cases the too early opening of the mastoid process—that is, already on the fourth and fifth day—has an unfavorable effect upon the course of the disease and on the process of healing. "One finds," says he, "especially in those mastoids composed of small cells, which are opened during the first eight days of the disease, several disseminated collections of pus spreading in all directions, from the size of a pin-head to that of a hemp seed, instead of an abscess cavity. In such cases the wound heals badly, in fact much worse than if one cavity were found, as it is seldom possible to remove all the diseased bone substance." The wisdom of the above statement one learns through experience. After the second paracentesis, the patient did so well that it was agreed in consultation with one of my colleagues by no means to interfere, and to continue with conservative

measures. The case was kept under strict surveillance, allowed to be up and about, until one day there was a sudden appearance of suspicious symptoms pointing to an involvement of the mastoid process. At once operative interference was insisted upon and the mastoid was opened. I was able to clean out that mastoid with the greatest ease and establish a good communication with the antrum. The rapid improvement of the patient, the absence of all discharge from the middle ear after the second dressing, which took place on the eighth day after operation, all the serious symptoms disappearing after forty-eight hours, and the patient at the present moment, five weeks after the operation, almost well, simply strengthen the opinion, as has also been proven in other cases, that under strict observation such conservatism may be practised without risk to the patient.

In attempting to answer the second question, "Does early interference prevent serious complications?" an explanation must be forthcoming from those cases which, when operated upon at the earliest possible moment, are nevertheless attended by most serious complications. There are cases, it will be admitted, in which the onset of the disease is stormy and the symptoms are persistent in spite of all treatment. It does appear that either the infection is so virulent, or the resistance on the part of the patient so poor, that, in spite of every measure that is employed to combat the further progress of the disease, we fail. I mention these cases because, should conservatism be practised in cases of this kind, which I surely would not advise, one must not forget the fact that after all these cases are desperate ones from the very beginning. Twenty-four hours' observance by a competent man will decide this matter at once. The point which I wish to make in these cases is the following: Given a patient two years of age, we will say, with a protracted form of otitis media, who suddenly develops a temperature of  $104^{\circ}$ , with pain on pressure over the antrum and mastoid process, with bulging of the superior posterior portion of the canal and tympanic membrane, a small perforation, with discharge in the canal,

bacteriological examination showing streptococcus infection, coming on after scarlet fever, should in a case of this kind interference be practised at once to avoid serious complications? Personally I am satisfied to pursue conservative measures until I am convinced that they are utterly useless. Such a procedure must of course be guided and controlled by the most careful observation of the patient. The presence of an urgent symptom or the persistence of the above symptoms for thirty-six hours would cause me to change my plan at once and proceed to operation. These cases are not attended, when conservatism is practised in this way, by any more serious complications than if interference were practised at once. The laity has a right to demand of us a most careful consideration of each individual case. If there exists a method of treatment which is without risk to the patient and which may spare him the ordeal of an operation, he should be given the benefit of this method.

A REPORT OF TWO CASES OF ACUTE OTITIS  
MEDIA SUPPURATIVA, FOLLOWED BY MAS-  
TOIDITIS AND MENINGITIS, AND CAUSED BY  
THE DIPLOCOCCUS INTRACELLULARIS OF  
WEICHSELBAUM.<sup>1</sup>

By GORHAM BACON, M.D.

(*With a temperature chart.*)

CASE I.—The patient, Jeremiah R., a law student in New York, twenty-five years of age, came under my care on December 19, 1898. He gave the following history:

He has had typhoid fever and measles. Six years ago he first had trouble with his right ear as a result of diving, when he ruptured the drumhead. This was followed by a discharge for a few days. This soon ceased and the ear has been all right since then. Twelve days ago he had a severe attack of influenza, and since then he has been in bed most of the time. Two days ago the left ear became painful. The pain, very severe in character, commenced in the morning, and in the afternoon the drumhead ruptured. The discharge, at first bloody, then serous, has since been very profuse and continuous. The pain has not been relieved by the appearance of the discharge.

*Examination.*—Profuse discharge from the **left** auditory meatus, thin and watery in character. Very marked mastoid tenderness on the same side. The patient was put to bed and the Leiter coil was applied, while the ear was ordered douched with a warm bichloride solution every two hours. Calomel was administered in small doses.

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<sup>1</sup> Read before the Section on Otology of the New York Academy of Medicine, February, 1905.



*Dec. 20th.*—Mastoid tenderness more marked than at time of admission. Posterior superior wall of the left external meatus drooping. Discharge from the canal still very profuse, and a microscopical examination shows great abundance of pneumococci and micro-organisms, which resemble very closely the gonococci, but which were in all probability the micro-organisms found in some cases of meningitis, called by some the meningococcus, or the diplococcus intracellularis meningitidis of Weichselbaum.

Under ether, the usual mastoid incision was made, extending from the tip to a point well above the posterior root of the zygoma and down through the soft tissues and periosteum to the bone. The hemorrhage was controlled and the flaps were retracted. The attachment of the sterno-mastoid muscle was thoroughly detached from the mastoid process and the cortex was found dark in appearance. The mastoid cells were filled with granulation tissue and softened bone, and there was creamy pus in the tip. The mastoid process was of the pneumatic variety. All the granulation tissue, pus, and softened bone were thoroughly removed with curettes. The entire outer wall of the mastoid cells was thoroughly cut away with chisels, gouges, and rongeur forceps and a free communication established between the antrum and the middle ear. The wound was irrigated with bichloride solution and packed with iodoform gauze and then bandaged.

*Dec. 21st, 6 A.M.*—Patient had a slight chill, and slept about two hours during the night. He coughed a great deal and complained of considerable pain during the night. During the afternoon he was very restless.

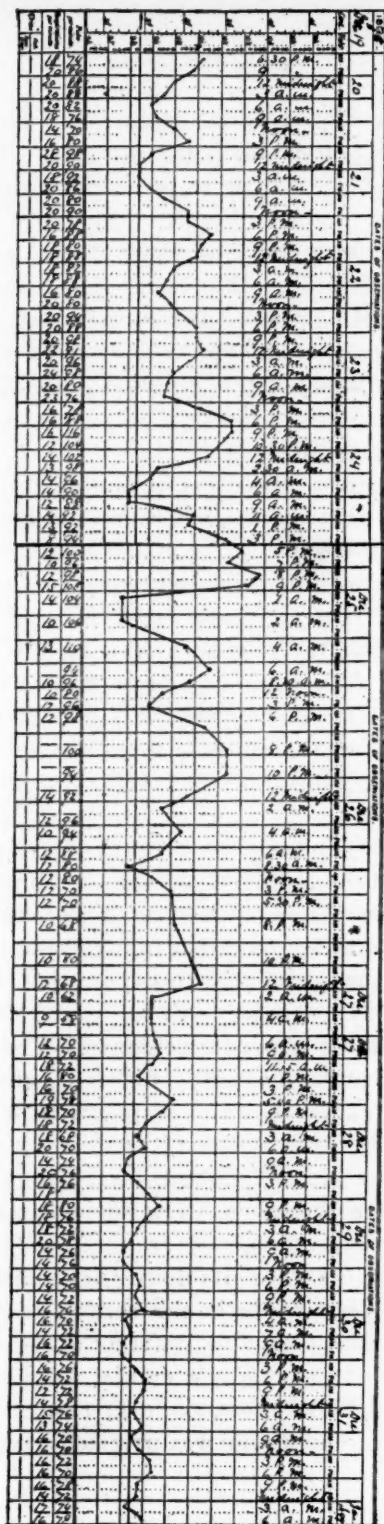
*Dec. 22d.*—The patient did not rest well during the night but complained of pain in the right ear, and this morning there was a profuse discharge of a straw-colored fluid from the canal. On examination there was seen a small perforation in the **right** drumhead, which was enlarged to afford better drainage.

*Dec. 23d.*—The wound behind the left ear was to-day dressed. The patient is fairly comfortable. The Leiter coil was applied over the right mastoid, owing to pain detected in this region.

The temperature as shown by the chart has varied considerably. At 9 A.M. it was  $99.\frac{1}{4}^{\circ}$ ; at 6 P.M. and 9 P.M. it was  $102.\frac{3}{8}^{\circ}$ . The pulse was inclined to be slow, as well as the respirations.

10 P.M.: Patient very restless and unable to sleep—sighing





respirations, and only 12 to the minute and irregular at times. He does not complain of any particular pain. Nausea seems to be his chief complaint, and at 10.30 P.M. he vomited after drinking some milk.

*Dec. 24th.*—Patient did not vomit again after 10.30 P.M., and he has had no chill. He rested very well after that time. He complains considerably of pain in the chest when he coughs, although nothing abnormal can be discovered by a physical examination. At 6 A.M. temperature normal, pulse 90, respirations 14.

3 P.M.: The temperature has gradually risen until now, when it is  $102\frac{1}{2}^{\circ}$ , pulse 94, respirations 8.

6 P.M.—The patient complains of feeling very tired. He has retained all his nourishment. The respirations are irregular, labored, and 10 in frequency. He has been given whiskey and strychnia. Pulse weak and intermittent.

*Dec. 25th.*—During the past night the temperature rose to  $103\frac{1}{4}^{\circ}$ , but fell this morning at 1 A.M. to  $97\frac{1}{4}^{\circ}$  F.; pulse 104, respirations 14. At 2 A.M., the temperature was the same, but the respirations were 10. During the day the temperature gradually rose to  $101\frac{1}{2}^{\circ}$  at 6 A.M., only to fall again to  $99^{\circ}$  at 3 P.M. It gradually rose again till it reached  $102\frac{3}{4}^{\circ}$  at 8 P.M. Discharge from right ear slight.

11 P.M.—On account of the variations in the temperature, the slow respirations, and other symptoms of brain pressure, the patient was again taken to the operating-room and etherized. The symptoms pointing somewhat to involvement of the sigmoid sinus, it was deemed advisable to expose that sinus thoroughly after removing the dressings. The wound from the former operation presented a normal appearance. The outer bony wall covering the sinus was carefully removed, and the sinus presented a normal appearance and on palpation seemed to contain fluid blood. The sinus wall was accidentally punctured, and a copious flow of blood followed, establishing the fact of the non-existence of a thrombus. The sinus was then packed and the hemorrhage controlled, and an incision was then carried backward through the soft parts down to the bone. With chisels an opening was then made in the cerebellar fossa and an aspirating needle introduced in different directions, but with a negative result. As the middle cranial fossa had also been exposed and no pus found there, no further operative interference was undertaken. The wound was irrigated with bichloride solu-

tion and packed in the usual manner, and the patient was again put to bed.

*Dec. 26th*, 8.30 A.M.—Temperature  $98^{\circ}$ , pulse 80, respirations 12. He slept some, but complained of pain in his head.

8 P.M.—Temperature  $100\frac{3}{4}^{\circ}$ , pulse 69, respirations 10. At midnight the temperature had gradually risen to  $101\frac{1}{4}^{\circ}$ .

*Dec. 27th*, 4 A.M.—Temperature  $99\frac{1}{2}^{\circ}$ , pulse 58, respirations 9.

5.40 P.M.—Temperature rose to  $100\frac{1}{2}^{\circ}$ , pulse 78, respirations 19.

*Dec. 30th*.—The patient has been given considerable milk frequently, also whiskey and strychnia. The temperature is practically normal; pulse varies from 70–78, respirations from 12–20. He sleeps well.

*Jan. 4th*.—The patient has gradually improved in every way, and the temperature, pulse, and respirations are normal.

*Jan. 11th*.—He has been out for a short walk for the first time to-day.

*Feb. 7th*.—The discharge from each ear has ceased, and the drumheads have healed.

CASE 2.—Mary M., aged thirty-two, married, English, was admitted to the hospital, Nov. 22, 1904.

*Previous History*.—Ten years ago she had an earache on the left side, which lasted for about three weeks. The present attack began five weeks ago with severe pain in the same ear, followed in two days by a discharge, which continued steadily for two weeks. The pain then began to diminish, and ceased altogether up to three days ago, when the discharge again appeared, but only to a slight extent.

*Present Condition*.—Tenderness well marked over the mastoid antrum and tip on the left side. Canal filled with pus, and drumhead could not be seen on account of granulations blocking the lumen of the canal.

On Nov. 24th, a Schwartze-Stacke operation was performed. The usual incision was made behind the auricle and down to the bone. After removing the entire outer cortex from the antrum to the tip, the cells beneath were found necrosed, and especially so at the tip, which later was full of pus.

The tip was removed and the cells up to the antrum as well as some in the zygoma. The dura above was exposed and found covered with granulations. The posterior canal wall was removed, as well as the external wall of the attic, and the antrum and middle ear were turned into one cavity.

The meatus was enlarged by the Ballance flap. The cavity was irrigated and partially closed behind, and the external auditory canal packed with strips of iodoform gauze. An examination of the pus from the external meatus was made by Dr. George Sloan Dixon, and it was found to contain the diplococcus intracellularis meningitidis of Weichselbaum, as well as the pneumococcus.

*Nov. 26th.*—The patient's temperature has varied from  $101^{\circ}$  F. on Nov. 22d, when admitted, to  $103\frac{8}{10}^{\circ}$  F. to-day. Nov. 27th it came down again to  $101^{\circ}$  in the early morning, only to rise again to  $105\frac{4}{10}^{\circ}$  on the same day. The patient for several days had complained of severe frontal headache. The patient was again etherized and the sigmoid sinus was thoroughly exposed. A few granulations were found on its wall. The tension seemed normal. A free incision was made in the sinus. There was a copious flow of blood from the upper end, but it was sluggish from the lower one, so that a curette was introduced down to the bulb, when a free flow of blood followed. The bone was then removed over the antrum, and a large area of dura exposed in the temporo-sphenoidal region. The dura was somewhat dark and covered with granulations. An incision was then made in the dura, and a director was introduced in different directions in the temporo-sphenoidal lobe, but no pus was found.

*Nov. 29th.*—Patient dull and apathetic. After the operation the temperature fell to  $102^{\circ}$ , and on Nov. 28th was as low as  $100\frac{4}{10}^{\circ}$  F., but gradually rose to  $105\frac{6}{10}^{\circ}$  F. on Nov. 29th. The fundus of each eye was examined, but nothing abnormal was found. The pain in the head (frontal and parietal regions) very severe, and the patient had a well-marked meningitis. An examination of the chest showed moist râles over the entire posterior surface of the left lung, with some scattered crepitant râles over the anterior surface of the same side. No areas of dulness, no bronchial breathing.

The patient gradually failed, the symptoms of meningitis being more marked. She lingered several days, became comatose, and died.

I have reported these cases to this Section to-night as they seemed to me to present several points of interest. They prove to me conclusively the great value in every instance of making a bacteriological examination of the pus

found in the middle ear. In the case of the law student, he started in with what seemed to be a severe attack of grippe. The middle ear on each side became affected, and the disease spread rapidly to the mastoid cells. At the time of the bacteriological examination, the pathologist at the Infirmary, Dr. George Sloan Dixon, was not familiar with the appearance of the diplococcus intracellularis meningitidis of Weichselbaum, as examinations of the pus from the ear of aural patients had not up to that date revealed the presence of such an organism. He reported at that time, however, that the organism present in this case resembled very closely the gonococcus, but very probably was the diplococcus intracellularis. Abbott, in the *Principles of Bacteriology*, says: "Diplococcus intracellularis meningitidis of Weichselbaum, isolated from the pus of cerebro-spinal meningitis, is microscopically also strikingly like the gonococcus as it is seen in pus." A brief glance at the temperature chart, especially from the dates, Dec. 23d to Dec. 26th, would suggest the possibility of a septic thrombus. It will be noticed, however, that even when the temperature reached 103.8° F., the pulse was only 98 and the respirations 12. Again, on Dec. 24th, when the temperature was 102.4°, the pulse was 94 and the respirations only 8.

The only explanation I can offer as to the cause of improvement in the patient's condition after the operation was that the intracranial pressure was in a measure relieved by the copious bleeding.

As to the second case, the patient had meningitis in all probability when admitted to the hospital, for she had had a severe pain in her head for some time previously, and when the dura was exposed in the temporo-sphenoidal region it was found very much thickened, involving quite an extensive area and was covered with granulations. There was no question about the presence of the diplococcus intracellularis of Weichselbaum in this case.



REPORT OF A CASE OF INFECTIVE SIGMOID SINUS  
AND JUGULAR THROMBOSIS COMPLICATED BY  
LEPTOMENINGITIS. LUMBAR PUNCTURE; SUB-  
DURAL IRRIGATION; DEATH.<sup>1</sup>

By JOHN D. RICHARDS, M.D.,

ASSISTANT SURGEON, NEW YORK EYE AND EAR INFIRMARY.

*(With a temperature chart.)*

Male, aged six years, from the clinic of Dr. Robert Lewis, Jr., New York Eye and Ear Infirmary, with a history of chronic suppurative middle-ear disease arising from one of the infectious fevers. The present illness is due to an acute process grafted upon the chronic condition. There is a subperiosteal abscess, a small cortical perforation, and the interior of bone, upon opening it, was found filled with a collection of fluid, pulsating pus; the bone involvement was moderately extensive; a Stacke-Schwartz operation was performed. The visceral plate of the mastoid was everywhere intact, except for a pinhole perforation in the sinus groove immediately over the sinus knee, through which there issued, with each pulsation of the brain, a jet of thin fluid pus. The sinus groove was removed from a point slightly beyond the knee to a point near the bulb, and a moderate-sized perisinuous epidural abscess evacuated. This collection of pus was hemmed in by a limiting pachymeningitis, and rested upon a bed of granulations which invested the sinus knee, the upper portion of the vertical limb of the sinus, and the adjacent dura, in all an area the size of a silver quarter. This granulation layer was not thick, did not materially interfere with the accuracy of palpation, and after close examination of the vessel I took it to be normal and uninvolved except for the granulations in-

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<sup>1</sup> Reported at the New York Academy of Medicine, February 9, 1905.

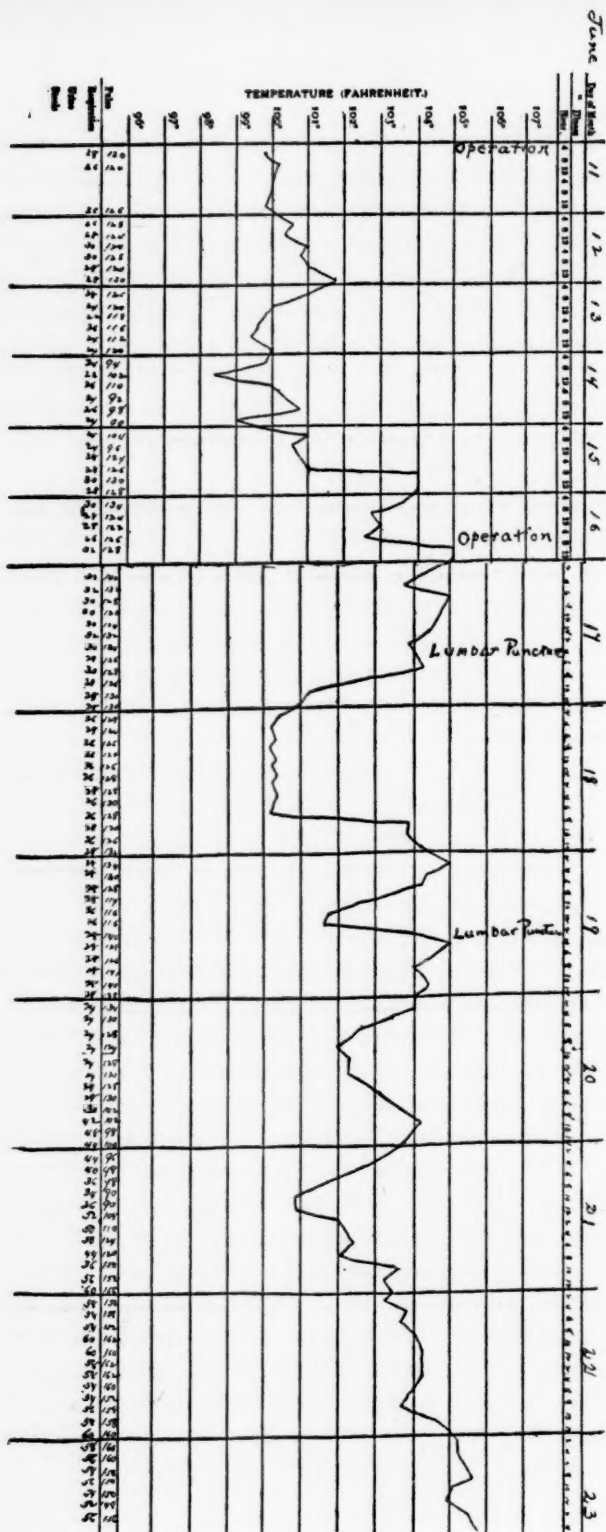


vesting its parietal wall; the vein dimpled evenly in all directions, was resilient and pulsating. The temperature of the patient at the time of operation was  $99\frac{1}{4}^{\circ}$ ; there were no symptoms indicative of thrombosis—nothing in the history pointing to intracranial involvement. Child was returned to bed in good condition. For four days the patient did well, when suddenly the temperature jumped to  $104^{\circ}$  F., fell gradually during the night, and on the following morning reached  $102\frac{3}{4}^{\circ}$ , when it suddenly jumped to  $105^{\circ}$  F. Stiffness of neck and marked irritability were now noticed; the symptoms pointed to meningeal invasion.

The sigmoid sinus was opened in the granulating area; its lumen blocked by a completely obstructing thrombus, the consistency of which made it certain that this clot had existed for some time prior to the original operation and had simply eluded detection. The external wall of the upper end of the vessel was now slit out on the lateral sinus, the upper limit of the thrombotic involvement passed, a free return of blood secured, and this end compressed.

The external wall of the lower end of the sinus was now slit down to a point as near the bulb as the bone removal would permit; no flow occurred. Upon turning the divided vessel wall aside, a soft liver-colored coagulum of blood representing a recent thrombus, was seen to extend from the cardiac side of the firmer clot down into the jugular bulb. This clot lay loose in the sinus and was not firmly attached to the interior of the vessel. No attempt was made to curette the region of the bulb, nor to extract this clot with forceps. A jugular resection was immediately performed. The upper portion of the vein contained a recent thrombus similar to that occupying the lower portion of the vertical limb of the sinus. The neck wound was now packed. With a pair of forceps a clot about one inch in length was extracted from the region of the bulb; as this was done a return flow occurred from below, evidently coming from the condylars, the inferior petrosal sinus, or from both.

The patient returned to bed in good condition. The temperature was not affected by the operation; the irritability continued. The following day a lumbar puncture was made, a turbid fluid withdrawn. Immediate microscopic examination showed streptococci in abundance, pus cells, and a diplococcus. Following lumbar puncture the temperature fell quickly four degrees,



remained at  $100\frac{3}{8}^{\circ}$  for fourteen hours, when it again jumped to  $105^{\circ}$  F.

A second lumbar puncture was made, showing streptococci in long chains, pus, blood, a diplococcus. From the symptoms it was evident that the meningeal invasion was increasing and an attempt was made to irrigate the subdural space; this proved futile, and in a few days the child died, having presented the symptom-complex of a general cerebro-spinal leptomeningitis.

The points in the case which appear to be of interest from a practical standpoint are the following:

1. The question arises as to what constitutes a legitimate suspicion that a sinus is thrombosed. Certainly we can not accept the mere presence of granulations upon the sinus wall as such; yet in this particular instance, with the exception of the granulations investing the dura, there were no symptoms indicative of intracranial involvement.

2. The case well illustrates what is true of a large portion of these cases, *i. e.*, in many instances we do not know, with any degree of certainty, that a sinus is or is not thrombosed until we have opened it.

3. That a thrombus may be completely obstructive and yet escape detection; if the clot represents a recent thrombus and is soft, and if at the same time the external wall of the sinus has undergone inflammatory thickening and has granulations upon it, the diagnosis is difficult.

4. The case illustrates one of the dangers which we incur when, having exposed a sinus which for any reason seems suspicious, we return the patient to bed, without opening the vessel in order to await the development of symptoms which point more definitely to the presence of thrombosis. Instead of the symptoms of sinus thrombosis appearing during this expectant interim, a fatal leptomeningitis develops. Had this sinus been suspected it would have been opened at the original operation regardless of the symptoms.

5. One of the dangers of attempting to curette a thrombus from the region of the jugular bulb prior to jugular resection is shown. If, before the jugular resection, the attempt had been made to curette the thrombus from the

bulb, or to extract it with forceps, it would have succeeded; a return flow (coming from either the condylars, the inferior petrosal, or from both) would have resulted, a jugular resection would not have been done, a large portion of the thrombus would have been left in the jugular vein, and the case would have been sacrificed through that error. It also shows that a return flow from the region of the bulb cannot be regarded as a guarantee that the thrombus has been extruded *in toto*.

REPORT OF THE TRANSACTIONS OF THE SECTION ON OTOTOLOGY OF THE NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, JANUARY 12, 1905. THE PRESIDENT, DR. GRUENING IN THE CHAIR.

Presentation of an encephaloscope, with suggestions as to its employment; by FRED. WHITING, M.D.

Dr. WHITING said that this little instrument which he had called the **encephaloscope** had been devised for the purpose of simplifying the treatment of brain abscesses. The necessity for some such device had been suggested to him by the condition of every case of brain abscess in his own practice and that of his colleagues which had subsequently come to autopsy. Upon cutting the brain, various paths were found leading from the original abscess cavity, these paths representing false passages where brain reinfection had taken place as the result of the introduction of gauze. Noting this, it had occurred to him that he might devise some method of packing the abscess cavity without causing these false passages. The instrument was much like an ordinary ear speculum, but larger, the extremity being closed by an obturator so that it could follow the abscess cavity without effort and avoid any laceration of the brain substance. As soon as an abscess is opened and the dura divided, the soft brain tissue prolapses toward the opening in the skull, so that, unless you are dealing with a chronic abscess the dense walls of which support the intracranial pressure, the abscess path is almost filled up, and in introducing the gauze dressing one is apt to make false passages. In dealing with a simple superficial abscess of the brain which does not extend deeply into the encephalon the cavity could be followed without danger of making these false passages.

The instrument was used with a head mirror, as in using the ear speculum. It should first be introduced for a short distance only, and then the obturator removed with a slight rotary movement, and at the bottom of the encephaloscope can be seen a meniscus which points toward the abscess, so that the direction of the abscess path can be readily determined. It was a very simple matter, and the abscess path could be followed almost by intuition. The instrument follows very readily, does not lacerate the brain tissue, and when the bottom of the abscess is reached the soft tissue spreads out. If you are in doubt as to whether you have really reached the bottom of the cavity, it can be gently touched with a cotton-covered applicator. The instrument had proved to be of value at the time of operation both for its diagnostic help and its mechanical assistance. Diagnostically it tells you at once whether you are dealing with an acute or a chronic abscess. In the majority of cases that could also be determined by introducing the little finger, but that could hardly be considered a desirable procedure. It was surely better to introduce something which you were sure would not lacerate the tissue, and which could be thoroughly sterilized. Another point at the time of operation was that you could determine definitely whether or not all the pus had been evacuated from the cavity. This was a very important point. On two occasions at least he had opened an abscess and after the first outpour of pus he had made a little expressive pressure against the brain tissue in order to expel still more of it, and when the pus ceased to flow, and he thought the cavity was empty, he had introduced the encephaloscope and found almost as much pus still in the cavity as had already been expressed. He introduced the encephaloscope and withdrew the obturator and the instrument filled up to the brim with pus which he removed with cotton; the instrument was then introduced still farther, and even the third time it filled almost to the brim—using the largest-sized encephaloscope, which would hold over a dram—making about three drams of pus altogether.

Another point in making a diagnosis with the instrument was that you could determine whether you were dealing with a single large abscess cavity or a large abscess path communicating with several other abscesses. With no other means of diagnosis than the introduction of the finger, it would be simply a matter of good fortune to determine a multiple abscess, but with the en-



cephaloscope introduced as described one could examine the path of the cavity from the periphery to the centre, and find without difficulty any additional paths leading from it and communicating with the original abscess sac.

Mechanically, the instrument enabled one to introduce gauze into the abscess cavity without any risk of tearing the abscess wall and carrying infection into healthy brain tissue. The walls of an acute brain abscess are the most delicate anatomical structure with which we come in contact, and in trying to carry in a gauze dressing it is very easy to go through this soft material and make false passages. This danger can be avoided with the aid of the encephaloscope. In the post-operative care of an abscess the instrument is used much the same as at the time of the operation—as a mechanical assistance in dressing the wound without the danger of making false passages, which have been so prominent a factor in the loss of life. It also enables one to carry the gauze to the full depth of the wound without making undue pressure in any particular part of the wound. You simply introduce the wick of gauze through the encephaloscope and then draw the instrument out over the probe, leaving the gauze at the bottom of the wound, and holding apart the abscess walls from the bottom to the cortex. You can also determine when to stop introducing the gauze into the cavity. In his own practice, Dr. Whiting had often felt in doubt about this point, but in dressing the wound with this instrument, after the gauze has been introduced for a certain length of time, there is deposited over the abscess path a layer of fibrin which gradually begins to granulate, and after eight or nine days, up to something like two weeks, the path of the abscess becomes covered with delicate, pinkish, firm granulations, which appear like normal granulations of an ordinary mastoid wound, and when these have become firmly established you are safe in withdrawing all gauze.

The instrument is also of advantage in dressing a chronic brain abscess. He thought that just as decidedly as in an acute abscess you should not pack the cavity firmly, in a chronic brain abscess you should do so. He cited a case where he believed the patient died because he had not at first dressed it properly. He treated the patient as for an acute abscess; in an acute abscess, after the first dressing the discharge that comes from the wound is usually devoid of odor and appears like good healthy pus, but

in the chronic abscess there is a dense plastic wall which on the introduction of the encephaloscope appears like the interior of a cavity possessing firm and unyielding walls. He carried a wick of gauze to the bottom of the cavity and thought that it would close and the material exfoliate or be partly absorbed, but as a matter of fact it did not. Day after day there was a foul purulent discharge from the wound, but he failed to recognize the necessity of discontinuing this mode of dressing and packing firmly until too late in the course of the disease, when the boy appeared not to be doing so well. He could not discover any new abscess, but began to pack the wound with larger amounts of gauze, with the result that the foul odor disappeared very quickly and the amount of discharge diminished. The case, however, had already become infected with meningitis and the boy died. He firmly believed now that if he had packed the cavity and discontinued it gradually, instead of treating it as an acute abscess by a single wick of gauze, there would have been a chance of saving the patient.

As to the results which he had obtained by treatment with this instrument: Some of his patients he had treated with the encephaloscope, the others without it. In the first group, treated without the encephaloscope, two died and one recovered. In the second group were seven patients, some of which had been reported at Washington two years ago. Of these seven cases, six had recovered. In the one group the patients were as strong and as well nourished as in the other, but with the aid of this instrument he had been able to convert his statistics from sixty-five per cent. mortality to eighty-five per cent. of recovery.

*Discussion:* Dr. MCKERNON said that he had used the encephaloscope with four cases, and could add his testimony to what Dr. Whiting had said. He had found it an advantage in searching the abscess cavity, and in one case would have failed to discover a multiple abscess had he not used the encephaloscope. He thought that possibly it was of even more advantage in dressing the cavity than in searching it, and he knew of no other instrument that would allow the cavity to be packed with such precision with gauze or with a simple wick. Three of his cases had recovered and one died. The one that died had an acute abscess and meningitis ensued. He only wished that he had had the encephaloscope to use in other cases previous to its introduction by Dr. Whiting.

Dr. GRUENING asked if the instrument could be used in cases where the opening of the abscess was over the antrum and where the instrument must be introduced through the lower surface of the brain. He thought that in the treatment of abscess of the brain there were other elements to be considered. Formerly abscess of the brain was treated with rigid rubber tubes and with irrigation, but this was no longer done. His first six cases died; his last four cases lived, because he treated them with gauze and did not irrigate. He had not yet used the encephaloscope, but intended to do so as he thought it a useful instrument. He had noticed that Professor Grunert of Halle speaks favorably of it after reading Dr. Whiting's paper, although he had not actually used the instrument.

Dr. PHILLIPS asked the courtesy of the Section in allowing *Dr. R. F. Held* to present a case of unusually large auditory canals and correspondingly large Eustachian tubes. The prominences were so large as to almost completely block the naso-pharynx, causing all the symptoms of nasal obstruction and adenoids. While up and at his work he seemed to be free from trouble, but at night he was a decided mouth-breather. Turbinectomy had been done on both sides, his adenoids removed, and uvula cut, but the symptoms of obstruction were still present when he came to the clinic for some relief. The right side is slightly larger than the left, the diameter of the canal on that side being over half an inch, in to the annular ring. He requires absolutely no speculum and the entire drum membrane and annular ring are plainly seen without even putting the ear on the stretch.

Dr. WHITING, replying to Dr. Gruening's inquiry as to whether the encephaloscope could be introduced where the opening had been made beneath the base of the brain, said that in the majority of cases the different sizes of the instrument enabled this to be done without difficulty. He had cases where the radical operation had been done, in which the abscess had been the result of chronic suppuration. He had not had cases where the brain abscess had been the result of an acute suppurative process, consequently the radical procedure had been instituted, and in that the roof of the antrum had been cut away, so that the cavity was easily accessible with the small-, and even the large-sized, encephaloscope. He had not happened to encounter a case where the anatomical structure was still in position, but did not think that that would constitute an obstacle to the use of the instrument.

Dr. GORHAM BACON presented a **new model for teaching Otology.**

He said that he had found some difficulty in teaching students how to throw the light into the canal in examining ears, the patients rebelling against their inexperience. Some years ago he had imported a papier-maché model from Germany, but had not found it exactly what was needed, and had seen in London plaster models of the ear, but these were easily broken and were not practical for use in the class-room. He had, therefore, had this model made by Meyrowitz. It was made of metal, about the natural size of the ear, and was mounted on a firm stand so that it could be raised or lowered. It was also provided with a ball-and-socket joint so that it could be moved in different directions. Then he had about sixty metallic disks which could be inserted in a slot in the canal. He had not had any special illustrations made, he simply cut out the various colored illustrations made by Politzer and others and had them pasted on the disks and found them very useful. The speculum fits readily into the canal. The student can reflect the light into the canal and draw upon the blackboard what he saw. He was having some disks made with an open space in the centre so that gold-beater's skin can be stretched over it, in order to enable the students to practise paracentesis on the drum membrane. He had found the model of great assistance in teaching new classes.

Dr. DENCH said that, knowing Dr. Bacon was going to present his model, he had taken the liberty of bringing one he had obtained from Pfau, of Berlin. He had used this model in teaching his classes at the University and Bellevue Hospital Medical College. The model was essentially the same as the one shown by Dr. Bacon, but was much more crude in its construction. The plates represented the drum membrane, and were introduced in a manner similar to that employed in Dr. Bacon's model. Dr. Dench had found the device of great assistance in teaching students, but was certain that the device presented by Dr. Bacon was much more elegant. The speaker said that, in teaching medical students, he had at one time had the temporal bones removed from subjects and mounted upon an appropriate standard, so that students could, in this way, examine moist specimens of the human ear. The speaker was convinced that Dr. Bacon's model would appeal to all teachers. It gave students every opportunity to learn how to manage the head-mirror, to appreciate the rela-

tive depth at which the drum membrane lies, manipulate structures in the external auditory meatus, and thus to obtain a proficiency of manipulation, which could be secured in no other way.

Dr. BACON replied that he had used the apparatus which Dr. Dench showed, and got his ideas from that and one which he imported from London, but that it did not have a very firm base, was easily broken, and the illustrations accompanying it were not very good. That was one reason why he had not had any illustrations made, but preferred to rely upon those of Politzer.

Dr. DENCH replied that he had merely showed his model as a matter of history.

Dr. HELD presented a new cautery handle and explained its advantages. It is so arranged as to overcome the disadvantage of having to use a handle where the cautery point was in a straight line with the handle, by having a joint at the junction of the handle and the socket for the cautery tip, thereby allowing an angular bend without having to bend the cautery tip. This is especially good in nose work, for the field of operation can be constantly in view. It is also especially adapted for tonsil work by rotating a movable contact point, and with the angular bends could be used on one tonsil and then on the other without any time lost for the adjusting and without twisting or turning the hands, this being accomplished by the mechanism of the handles.

Dr. GORHAM BACON read a paper reporting **two cases of acute otitis media suppurativa, followed by mastoiditis and meningitis, and caused by the diplococcus intracellularis of Weichselbaum.** (Published in full on pp. 191-197.)

*Discussion:* Dr. LEDERMAN said that hearing Dr. Bacon's history of these cases recalled to his memory three unfortunate cases that he had had to deal with, in which the symptoms pointed to cerebral involvement of a complicated character. After the radical operation the patients' pulse became slower, symptoms of headache intervened, and a slight temperature of  $101^{\circ}$  to  $102^{\circ}$  appeared, fluctuating, though never to such a degree as reported by Dr. Bacon, but never falling below  $100^{\circ}$ . In one of the cases he had been compelled to operate, and opened up the temporo-sphenoidal region, but was unable to find any pus, even after five or six deep punctures. All of these cases, which were characterized by slow pulse and pain in the back of the



head, and symptoms of cerebral involvement without definite local indications, came to autopsy. In three of them no pus was found in the brain tissue, but these proved to be cases of leptomeningitis. In one of the cases the symptoms pointed distinctly to a cerebral involvement, but he was unable to locate it. In another case, which also ended fatally, a man about forty years of age, there was a chronic discharge of the ear with symptoms of mastoid involvement. A radical operation had been performed, but the patient did not seem to do well—his temperature rose slightly and his pulse became slow. Dr. Lederman was called in to see the case and the symptoms seemed to indicate a temporo-sphenoidal abscess. He operated but was unable to find the abscess, although he made four or five incisions in the brain. The patient became better and improved so much that he wanted to get up and go home, but it was thought best to keep him under observation. Nystagmus appeared a week after this operation, and he became comatose. A diagnosis of cerebellar abscess was then made, and the Doctor chiselled from the mastoid wound to the cerebellar region, when as he was about to plunge his knife into the cerebellar region the patient stopped breathing. Later a large abscess was found, but the Doctor thought he had lost valuable time by chiselling posteriorly and going over the cerebellar region. There were no circumstances pointing to the location of the cerebral abscess other than that it was in the cerebral cavity. All of these cases showed very emphatically how difficult it is to make a diagnosis in diseases of the cerebral cavity complicating purulent diseases of the middle ear.

Dr. W. P. EAGLETON read a paper giving a report of **a case of sinus thrombosis followed by infective arthritis of both hips with spontaneous dislocations**; operations; recovery. (Published in full in the August number of these ARCHIVES.)

*Discussion*: Dr. DENCH said that he had been very much interested in the report of a case of multiple arthritis due to aural infection. He spoke of a case, occurring, last year, in his own service at the New York Eye and Ear Infirmary. The patient had, on admission, an acute otitis, following grip. There was, at this time, some mastoid tenderness. The drum membrane was freely incised, and a bacteriological examination showed the presence of pneumococcus. Twenty-four hours after admission the man developed a double pneumonia, and the condition of his

lungs made it impossible to perform the mastoid operation, although the mastoid was quite tender. This tenderness gradually subsided, the pneumonia ran a regular course, and the patient slowly convalesced. After the temperature, due to the pneumonia, had fallen to nearly normal, the patient began to run a characteristic septic temperature. An examination of the lungs showed nothing to account for this temperature, although Dr. Dench feared there might be an abscess of the lung. At this time all mastoid tenderness had disappeared, and the wound in the drum membrane had entirely healed. Owing to the absence of any lesion of the lungs to account for the temperature, Dr. Dench made the diagnosis of septic thrombus in the lateral sinus and internal jugular. The patient was operated upon: the jugular bulb was found to be filled with a purulent thrombus, although the mastoid cells were perfectly normal. The clot in the sinus was removed, the internal jugular being excised from a point just above the clavicle to a point just below the jugular bulb. The patient did fairly well for four or five days after the operation, but then he began to complain of pains, first in his left shoulder, then in the right wrist, and then in the left knee; the left knee-joint was particularly painful, and was very much swollen. An examination of the clot in the jugular showed streptococci. From the sixth day after the operation, the patient ran a characteristic septic temperature, the temperature varying from  $100^{\circ}$  to  $104^{\circ}$ . The blood cultures showed streptococci. The patient finally died from general pyæmic infection.

Dr. MCKERNON told of a case that he had seen last March—a man suffering from scirrhus of the liver with very marked ascites, who developed pain in the left ear at night. He saw the patient the next afternoon, and the ear drum had ruptured. He took a culture of the pus from the canal, which showed the predominance of the streptococci. The man did not suffer much pain for twenty-four hours, but at the end of that time he suffered considerable pain in the opposite shoulder. Dr. Brewer was called in; he aspirated the shoulder and found pus. Two days later, the elbow joint on the same side became affected, and Dr. Brewer opened the elbow and shoulder joints. The ear condition did very well, and the perforation closed in five or six days. The man died, however, a short time after, of myocarditis.

Dr. TOEPLITZ said that seven years ago he had seen a case of otitis acuta in a young man, seventeen years of age. He was

operated upon soon for abscess of the sigmoid sinus and thrombosis of the jugular vein. The sinus was opened, and the jugular vein ligated and excised. A week later, the left-foot joint became involved, the knee three days later, and then the left shoulder; then on the other side, the other foot and the right elbow, and finally, six weeks after the first operation, he had a limited infarction of the left lung and an endocarditis. He finally recovered. The joints contained no pus. Two were opened, but only serous fluid was found. He thought that the case stood on record as one of the most extensive affections of the kind followed by recovery of the patient.

Dr. S. McCULLAGH read a paper on **thiosinamin in the treatment of tinnitus aurium** (author's abstract).

The writer reports results obtained in 38 cases:

	Cured.	Much Improved.	Improved.	No Improvement.
OM C C . . . .	15	7	4	5
OM P C (resid.) .	5	0	0	0
Ot. Int. . . . .	0	0	1	1
	—	—	—	—
Total . . . . .	20	7	5	6

He draws the following conclusions from his experience:

1. The drug exerts a markedly beneficial action on ear disease, accompanied by the formation of new connective tissue.
2. This beneficial action is due to an increased pliability of this tissue, allowing the usual forms of treatment to accomplish their object better.
3. Its administration should always be combined with the usual forms of treatment—catheter, otoscope, etc.
4. As good results may be obtained from administration by the mouth as hypodermically.
5. Better or more prompt results will be obtained in recent cases.
6. It exerts a beneficial effect on vertigo.
7. Care should be used in looking for contraindications, as tuberculosis, abdominal scars, or any condition where the new connective tissue is serving a useful purpose.
8. Better results are obtained with it in relieving tinnitus than with any drug heretofore used.
9. Its effect on the hearing power is beneficial.

Dr. T. PASSMORE BERENS said that he had been much interested in this drug, and had been watching Dr. McCullagh's experiments and the results obtained, and was inclined to believe that with thiosinamin the profession might hope to be able to relieve some cases of tinnitus for which hitherto no other drug or treatment had availed. He had used it in his own private practice on eight cases, which had showed no improvement from anything that he had been able to do for them, either mechanically or by medication. They were all cases of tinnitus accompanied with considerable deafness. In two of the cases he obtained a very marked improvement from the use of thiosinamin. One case could hear a watch on contact with one ear; in the other ear he could not hear the watch, but heard the acoumeter at three inches. After six weeks' treatment with thiosinamin, this patient could hear the same watch some six inches on the better side, and heard the acoumeter thrice the distance on the other side. The tinnitus was not relieved.

A second case, in which the effect was very marked, was a case of vertigo, tinnitus, and deafness. The deafness and the vertigo were improved, but the tinnitus was not affected. He hoped that some of the gentlemen present would try thiosinamin in some of their cases where other methods gave no improvement.

STATED MEETING, FEBRUARY 9, 1905. DR. GRUENING IN THE CHAIR.

**Report of a case of double mastoiditis with extensive involvement of the zygomatic cells.** By W. P. BRANDEGEE, M.D. (Published in full in the August number.)

**Preliminary report of a case of cholesteatomatous disease, with stenosis of the external auditory canal; extensive destruction of the temporal bone; and external manifestations.** With exhibition of the patient. By M. D. LEDERMAN, M.D.

The patient had presented himself on January 16, 1905, and dated his present trouble from December 23, 1904, when the swelling appeared behind the left ear above the plane of the external auditory canal. There had been no discharge from the ear for two years, and no pain. Over the left ear and extending along the temporal region was a large hard growth. Only one point of fluctuation could be detected, and that was over the

region of the mastoid antrum. The patient states that this hard bony prominence has been there since he was sunstruck ten years ago. With the present trouble, he has suffered no pain, little elevation of temperature, and with this extremely large external mass, which resembled at first glance a fluctuating periosteal abscess such as is seen in children, there was comparatively no tenderness over the mastoid tip and no swelling over the lower portion of the mastoid. The external canal was almost occluded by an exostosis of the posterior wall. Above this obstruction a small probe could be introduced for  $2\frac{1}{2}$  inches, and on its return it was covered with pus. The interesting features of the case were the marked swelling, slight pain, and abnormally large bony mass occupying the temporal region. A diagnosis was made of chronic suppurative disease, with extensive involvement of the mastoid cells.

The patient came to the Hospital on the next day, January 17th, and was operated upon. In making the usual incision, a large fistula through the cortex was found, through which thick pus oozed. The outer bone covering was a shell and was easily removed, exposing a large cholesteatomatous mass. The disease had extended so far that after curetting the growth from the cavity the descending portion of the lateral sinus was found exposed for  $1\frac{1}{2}$  inches. The posterior canal wall had been eaten away, so that nature had already accomplished a Schwartze-Stacke operation. The posterior fossa was exposed. The dura could be seen through an opening the size of a fifty-cent piece. The petrous portion was considerably eroded.

Words fail to give a clear picture of the ravages of the disease in this case, but the members of the Section can see its extent by looking at the patient. In curetting away the cholesteatomatous mass it was found to extend into the Eustachian tube, which opening is readily seen at present through the mastoid wound. The descending portion of the facial nerve was lying in the wound covered with cholesteatomatous masses, but was not protected by any bony covering. As it was impossible to recognize the nerve, some traumatism resulted. A small fistula seemed to lead into the semicircular canal, and this opening was also cleared. The dura of the posterior cerebral fossa can still be seen. The upper bony boundary of the tympanic cavity had all been eaten away, leaving the middle ear and cerebral fossa exposed. The expected facial paralysis appeared on the day fol-



lowing the operation, but except for some dizziness (due no doubt to curetting the fistula which led into the semicircular canal) there was no further reaction.,

It is certainly one of the most extensive cases of destruction he had ever seen, and much of the external layer of bone was involved by the cholesteatomatous disease. A limiting membrane surrounded the tumor.

Dr. OPDYKE read the **history of a fatal case of mastoid disease** and requested the opinion of the members regarding the cause of death.

Margaret Van D., aged 4½ years, family history good, and health previous to present illness excellent. For three or four weeks the child had days of seemingly good health and alternating days of moderate range of temperature and a feeling of general malaise. Repeated examination of the blood failed to elicit the presence of malaria or typhoid fever. A slight attack of enteritis early in her illness responded promptly to the proper treatment. None of the exanthemata made its appearance, nor were there any other special symptoms present whereby a certain diagnosis might be made. To be sure, the child had a mild attack of ordinary grippe, of the coryza form, but there was nothing else whereby either the family or their physician could arrive at a satisfactory conclusion. The little patient continued to grow worse, the temperature rose, being now of a remittent type, the pulse keeping well up above 120, restlessness well-nigh continuous both day and night, and anorexia and constipation well marked. Headache was a prominent symptom also, and was mainly of a frontal and occipital character. As yet there were no eye symptoms nor nervous reflexes to assist in a diagnosis. During the fourth week there suddenly appeared a swelling of the anterior cervical gland on each side. Also a markedly active acute otitis media, and within twenty-four hours both drum membranes were perforated and the ears were discharging a virulently purulent pus, which was loaded with streptococci and pneumococci. For the following two days the symptoms were somewhat moderated and the child's general condition improved, although the hearing rapidly grew worse and there appeared eye symptoms. These were photophobia and marked lachrymation, and a slight suspicion of Argyle-Robertson pupils. The restlessness and headache now suddenly increased, and there appeared some rigidity in the muscles of the back of

the neck. The enlarged cervical glands also appeared superficially reddened and the tissues over the left mastoid antrum became swollen, injected, and œdematous, causing the ear lobule to bulge conspicuously forward.

Such was the clinical picture at my first examination. I advised an immediate operation, which was delayed until the following day, at the request of the family. That same night, however, I made a free incision of the left drum membrane, in order that there might be free anterior drainage. The temperature fell to nearly normal on the following morning, and the child seemed a whit brighter. During the afternoon the temperature again reached  $104^{\circ}$ , the pulse became very rapid and irregular, the migraine almost unbearable, and the restlessness extreme. That same night I performed a radical mastoid (Schwartz) operation. The child died in two days.

All the subcutaneous structures about the mastoid antrum were enormously infiltrated, and the same condition extended well down into the neck. On opening the mastoid antrum, pus in large quantities exuded, and the bone both over and about the same was badly necrosed. All the mastoid cells were found to be in a suppurative condition, and were thoroughly ablated. Neither the sinus nor the tegmen was necrosed, nor was the posterior auricular wall diseased. The aditus ad antrum was filled with detritus and pus, and it, together with the middle-ear cavity, was thoroughly cleansed and drained. The suppurative infiltration of the cervical tissues was found to be superficial and seemingly without any connection with the deeper structure, and for this reason they were not opened or drained. The middle-ear cavity, aditus ad antrum, and mastoid antrum were now thoroughly flushed out, and the latter firmly packed with iodoform gauze.

Outside dressings in large numbers, on account of the advanced local suppurative condition, were now used, and the patient promptly returned to her bed. The time of operation was fifty-one minutes, chloroform was used as the anæsthetic, and the little patient apparently suffered little shock—in fact, she was in far better condition as to pulse and circulation than before the operation. She passed a comfortable night, and on the following morning her temperature was normal and remained nearly so during the day, the pulse also being strong and regular. Her general condition likewise markedly improved, and every-

thing looked remarkably favorable. The second night was also a satisfactory one, and the temperature early on the following morning was but  $99\frac{1}{2}^{\circ}$ .

At about eight o'clock on this, the second morning following the operation, the child suddenly took a turn for the worse, and rapidly sank. There now appeared all the symptoms of a typical cerebro-spinal meningitis, and death took place at about noon, the earlier stage of excessive irritability being followed by a period of profound coma. This sudden fatal termination was entirely unlooked for, and it is exceedingly difficult for one to determine its cause, especially, too, as no autopsy was permitted. Had there been a later involvement of the sinus, I think there would have intervened a longer period before death. There might have been either a cerebral or a cerebellar abscess present, but no symptoms typical of either appeared, and there was, therefore, no justification for trephining. Inasmuch as the bony walls surrounding the mastoid antrum, the sinus, and the middle-ear cavity were sound and intact, I did not feel in any way justified in further surgical procedure at the time of operating.

Dr. SMITH told of a similar case of a child in his own experience, where the primary operation had been performed before the patient came to the clinic. The case was treated for a few days and a secondary operation was then advised. Granulation tissue and dead bone were found, but otherwise the wound was in good condition. The sinus was explored but no involvement was noted. The dura was also exposed and found healthy. The next day the child had stiffness of the neck and developed high temperature and on the third day died. Autopsy showed cerebro-spinal meningitis. The pathologist was unable to trace the paths of infection, and all cerebral tissue surrounding the wound was normal, as far as could be determined.

Dr. MCKERNON said that he thought the cause of death in Dr. Opdyke's case was meningitis with secondary encephalitis. Probably this condition had been going on for some time prior to the operation. He had seen several cases where the operation was done late, and where without question the infection after the operation had come from poisonous material in the veins passing into and infecting the meninges and cerebral structures. He thought that the development of the symptoms forty-eight hours after operation showed that this was the cause of death, and that

the infective material was already present in the veins at the time of operation.

**Report of a case of infective sinus thrombosis, complicated by meningitis, lumbar puncture, and subdural irrigation.** By J. D. RICHARDS, M.D. (Published in full on pp. 198-202 of this volume.)

Dr. EMERSON told of a case which had been operated upon with a happy result through an error in diagnosis. The patient was a woman of thirty-nine with a history of fifteen years of chronic catarrhal otitis, with the result that she was almost totally deaf. Early in November she had an acute otitis. A general practitioner had made a paracentesis, and at the end of three days she developed a mastoid case. She was referred to him and was operated for mastoiditis. The sinus was exposed, and because of the discoloration of the wall was incised, but the hemorrhage was free, and there was evidently no clot. It was packed. The temperature remained at  $102^{\circ}$  until at the end of five days the packing was removed, and she then went on to recovery, and the wound was attended to by an interne, so that he did not see her for some time. Three weeks after the operation, the interne called attention to the fact that she was not sleeping well, had poor appetite, and suffered from headache, and asked him to see her and indicate what should be done. He looked her over, and kept her under observation for five days, during which time the restlessness and sleeplessness increased, and she developed great tenderness over the skull on that side; her temperature never went above  $99^{\circ}$ , the pulse went down to 54. Two days later she developed a strabismus of the left eye, considerable mental hebetude, pasty look, bad color. The low temperature, low pulse, tenderness, and all associated symptoms led him to think it a case of temporo-sphenoidal abscess. Two or three general surgeons were consulted and were divided in opinion, but with the support of one of them he opened up the wound freely, and resected a portion over the temporo-sphenoidal lobe. The dura bulged into the wound when it was incised, and fluid spurted out for a quarter of an inch, clear in color. There was no purulent discharge, no sign of pus in the brain though he passed the knife in freely in several directions. He drained the wound but did not suture the dural flap. The result was very astonishing and gratifying. The patient improved immediately, was up in a week, and in three and a half

weeks left the hospital. All dressing was removed about ten days ago, and he had seen her in the morning, looking well and in good health. A remarkable feature of the case was that although she had been stone deaf for ten years as the result of the chronic catarrhal process, her hearing had improved since the destruction of the drum, and she can now hear ordinary conversation.

Dr. GRUENING said that Dr. Richards dwelt upon the need of more definite indications in regard to the diagnosis of sinus thrombosis, and then stated that in sinus thrombosis it is best to ligate the jugular vein, even if there is a return current from the bulb. These were interesting subjects for discussion.

Dr. MCKERNON said that he thought all who were doing this work realized how difficult it was at times to determine when the sinus was exposed whether or not it was involved. In some of the cases he had seen, however,—both at the time of the primary operation, and later on when trouble in the sinus was recognized,—there had been distinct and definite points for its recognition. If there was a recent clot formation in the sinus at the time of the primary operation, there was little if any evidence to be obtained from physical signs alone, but if it had gone on for some time the indications were very clear. This would not apply so well to children as to adults, though he had seen the indications in children. One point was the loss of lustre of the dura over the sinus. That has been prominent in many cases. In other cases where a clot has been present and the dura has been exposed, at that point there has been a distinct loss of lustre, and a little grayish discoloration of the sinus. This physical sign has been distinct and marked in a number of cases. In some of the other cases, where the clot had unquestionably remained for a long time, the sinus was distinctly darkened in color.

Regarding the point as to the danger of curetting or disturbing a clot in the bulb, he thought that we had to be guided by the conditions in each case, as no law could be laid down and followed in every instance. Each case was a law unto itself. He had curetted, had passed forceps down to the bulb, had even passed a bent curette into the jugular bulb and removed the clot, obtained a return flow, and the cases got well. It would not do to lay down a hard and fast rule to tie the internal jugular vein. If you have a disintegrated clot with pus present in the jugular



bulb and wipe it out with cotton or gauze, and find little particles of pus coming up from the lower portion, it is dangerous to cut it or manipulate much in the bulb. In such cases the best method was to resect and remove the internal jugular vein. But if, upon exposure, only a clot be found, and no pus be present, even though we do not get a return flow from the vein, it is unwise to resort to jugular ligation in every case, for a fair percentage of these cases recover, when the clot in the sinus and bulb has been removed.

Dr. LEDERMAN told of a case where the sinus was bathed in pus and granulation tissue, was dull, and had no shiny aspect. After cleansing the bone wound thoroughly, the sinus was incised and a free flow of blood followed. No clot was found, and the patient recovered without further complications. He agreed with Dr. McKernon that in individual cases the clinical aspect of the case must be taken into consideration. Dr. Kipp, of Newark, had reported a case he operated upon where purulent disease of the sinus existed, and in which all he did was to open the sinus and cleanse the cavity without disturbing the disintegrated clot in the bulb. The patient made a good recovery with some symptoms of metastasis. There is no question of ligating where we have distinct evidence of septic infection and where the attempt at removing the clot is not followed by a return flow. He recalled a case he reported some time ago where the symptoms indicated complications of the brain and sinus,—slight chills, lowered pus, increased respirations, and septic temperature,—in which the clinical aspect pointed to sinus thrombosis. The sinus was opened without any confirmation of these indications. The patient came to autopsy and proved to be a case of leptomeningitis without other complications. The brain sections showed no other focus. Such a clinical experience shows how difficult it is to arrive at a positive diagnosis.

Dr. HASKINS inquired whether it was the practice of Dr. McKernon and Dr. Richards to open all sinuses that were covered with granulation tissue or where there was a dark area on the sinus, in the chance of finding a clot in the sinus. He recalled many cases where he had uncovered mastoids and found the sinus bathed in pus. Last week in the case of a boy of ten years of age there was a spot over the sinus almost gangrenous in appearance. It had been his practice to leave the sinus alone, and he has never opened a sinus, and has had no ill results from

sinus thrombosis. He would like very much to know the practice of the other members.

Dr. GRUENING said that undoubtedly before the sinus was opened there must be other symptoms besides discoloration.

Dr. MCKERNON said that when the indications were distinct the sinus should be opened, but that he did not open for a mere discoloration unless there were other distinct and definite physical signs.

Dr. GRUENING said that the removal of the clot from the bulb is very frequently indicated and is followed by good results. In regard to the remarks made by Dr. Richardson concerning sepsis there are as many cases on record of sinus thrombosis where the jugular vein was ligated, as where it was not ligated, and the mortality was not greater in the cases where it was not ligated. The statistical records balance very nicely and the question cannot be decided in an offhand way. In some cases it is well to ligate and in other cases it is not indicated.

Dr. RICHARDS said that he thought it was impossible in a great many instances to be certain of the presence of a thrombus within the sigmoid sinus unless the vein was opened; he considered it conservatism to open the sinus when for any reason it seemed suspicious, but replying to Dr. Haskins he would say that the mere presence of granulations upon the sinus wall would not be considered by him sufficient reason for opening the vessel. He considered the attempt to curette the jugular bulb prior to jugular resection a dangerous procedure; and having opened the sinus and slit its external wall down to a point as near the jugular bulb as the bone removal would permit, and getting no spontaneous return flow from below, it was his practice to resort immediately to a jugular resection, without making any attempt to dislodge the thrombus from the bulb. He considered the aspiration of the loosed portion of the clot as a great danger, particularly as the curette blocks the egress of these emboli. In reply to the statement made by Dr. Gruening, he thought we were usually unable to tell the condition of the jugular vein—*i. e.*, as to whether or not it was thrombosed—before the neck was opened.

Dr. WIENER read a paper on **some mooted points in the treatment of protracted cases of acute middle-ear diseases and their complications.** (Published in full on p. 183.)

Dr. MCKERNON inquired what was Dr. Wiener's prognosis in

regard to future hearing where there was distinct evidences of pus in the mastoid. Dr. Wiener had asked whether the complications which sometimes arise are more apt to be diminished or lessened without early operations. Dr. McKernon thought they were diminished, without question, in many instances, though this depended somewhat upon the character of the infection. If the infection were of a certain type,—the streptococcus,—a guarded prognosis should be given, but in the early stages of the disease, with a history or presence of a purulent discharge from the middle ear and the physical signs present, such as a prolapse of the postero-superior canal wall and tenderness over the antrum and tip, these should be considered as definite evidence to go into the mastoid. He believed that pus would be found in every instance, and it was dangerous to allow such cases to go on, hoping that nature would heal and resolution take place. He considered this an extremely dangerous procedure and wished to protest against it. Another point on which he wished to speak was where Dr. Wiener said it was unwise to operate early, and that we should wait until the pus accumulates throughout the mastoid structures and then operate, for if operated upon earlier they do not heal so readily. He did not agree with this, but thought that where there is infectious matter it would heal as quickly one time as another. It was bad practice to allow infectious matter to remain in the mastoid.

Dr. MAY said that there were really two sorts of cases discussed in Dr. Wiener's paper. In the latter part of the paper he speaks of cases in which the symptoms are urgent and in which he himself advises interference after eighteen or twenty-four hours. Here he did not think there was any question among competent men as to the proper time for interference. In such cases the mastoid would not admit of waiting. In cases that did not clear up in the course of a week or two, he thought that waiting was a much more dangerous procedure than the operation itself. He had never seen reports of mischief done by operation that was possibly undertaken too early. As the army officers formerly said about the Indians, "The only good Indian is a dead one," so we might say about a mastoiditis: "The only safe mastoid is an open one." Where it does not yield readily to treatment, the only safe way to treat a mastoid is to open it. The only cases he worried about were those where the family or family physician prevailed upon him to postpone operative inter-

vention. Occasionally a case was operated upon that might have gotten well without operation; he did not believe any good surgeon ever felt he had injured his patient through operation, while all who had observed a sufficient number of cases knew of fatal ones in which the operation had not been performed sufficiently early. The greater the number we see, the stronger is the feeling that, after all, we have been too slow in operating rather than in too great a hurry.

Dr. OPDYKE referred to an article shortly to be published reporting 75 cases of incision of the drum membrane for cure of otitis media, and presenting a conservative estimate of the results. Of that number, 68 of the cases were very young—from six months to five years of age, and they recovered promptly with good hearing and nearly normal drum membrane. Many of these were taken very early, before the drum membrane ruptured, and required but one incision, and that anteriorly. Those already perforated had the posterior crescentic incision. The remaining cases were those of adults, and in two instances the patients were over fifty years of age. In each of these a secondary incision was not done but, on the contrary, a radical mastoid. In each case there was found plenty of pus, and both got well with moderately good hearing and entire closure of the drum membrane. The speaker agreed with Dr. McKernon in regard to the resultant hearing and the relief, both mental and physical, on the part of the patient, and believed that waiting was neither advisable nor safe. We even have a right to do an exploratory mastoid, just as a general surgeon has a right to do an exploratory laparotomy, and we should not long play a waiting game. He did not believe in resorting to a posterior incision of the drum membrane, especially if there were a perforation already present and streptococci in the discharge, but believed in promptly opening the mastoid instead.

Dr. LEDERMAN said that the recovery of many of these cases of acute otitis after incision could be explained by an anatomical fact, as in many cases the level of the antrum is different. In those cases where the pus continues to appear after being wiped out, the antrum is low down, and the floor of the antrum is much below the level of the aditus; here conservative treatment will do no good. He then told of a case of acute protracted otitis which apparently cured up under antiseptic treatment and the patient felt comparatively well, but after three weeks began to

suffer with headache. There was no tenderness or rise of temperature, but the pain was like neuralgia. There were no local symptoms to indicate the necessity of a surgical operation, and only on the eye symptoms did he decide to explore. The veins of the optic nerve were engorged and tortuous. He found but a drop of pus in the antrum, and then came upon an epidural abscess as large as a hazel-nut. There was no clinical picture to indicate the existence of such disease.

Dr. **BRANDEGEE** said that he wished to add his protest to Dr. McKernon's against the heresy of too conservative treatment. He was convinced that the general trend of opinion to-day is toward early operation, and felt that the patient reported had a very fortunate result. He thought that with the symptoms as stated the patient could justly have blamed the physician if any complications had arisen. Such conditions called for prompt treatment. We should not leave pus in the mastoid bone under suspicion. If the middle ear cannot account for the pus, there must be some involvement of the mastoid. It is not fair to modern otology to turn its back on conservatism, as stated by the writer of the paper.

Dr. **GRUENING** said that the case related by Dr. Wiener argued against his views. The patient, a young girl of sixteen, remained under his observation until she had symptoms of meningeal irritation. He then decided to operate and laid bare the dura. In ordinary cases of acute mastoid disease the dura is not laid bare. That very fact showed that Dr. Wiener waited too long. Forty-two cases of acute otitis with four mastoid operations and one death are not a favorable statistical record. This is a bad showing for the conservative treatment.

Dr. **WIENER** said that he had anticipated arousing just such a discussion as had taken place. In regard to being able to report only forty-two cases, out of which number interference had been necessary in only four, he was unwilling to believe that the good result obtained was due to luck or good fortune; rather to the fact that each case was carefully observed and treated upon sound principles. So far as opening a mastoid, and finding nothing, and being satisfied that one has done no harm, such exploratory proceedings are to be condemned. Only those who do not study their clinical ear pictures carefully will meet with such occurrences. There is not one physician in the room who would allow his mastoid to be opened without there being pronounced



indications for such interference. Our patients have the right to demand of us the same consideration. In regard to having waited, in the case reported in this paper, for signs of meningeal irritation before operating, he begged to differ with the speaker who referred to this fact. We know perfectly well that in the simplest forms of otitis media we often meet with such symptoms as nausea and vertigo, which at once disappear after a paracentesis. It needs something more than nausea and vertigo to say positively that we have signs of meningeal irritation. One might as well say that because a patient is suffering from headache he is afflicted with tumor of the brain, one of the most common symptoms of this affliction. He exposed the sinus and dura, as he did in all cases of this kind, to satisfy himself that nothing should be left undone. So far as the case reported not supporting this paper, again he begged to differ. It demonstrated, first of all, that conservatism was the proper measure early in the disease, as there undoubtedly existed no mastoid disease until within about one week before the operation. Furthermore, the successful outcome without complications, after interference, demonstrated very vividly to my mind how far we can employ conservative measures without risk to the patient. So far as changing his tactics, it would require something more than a simple statement of facts before he could be persuaded to do so. He could not believe, with the number of patients reported in this paper, treated as carefully as they could be, constantly under competent observation, that any patient who submitted to this treatment would be placed in any danger whatsoever. He wished again to emphasize the fact that especially in children under four years of age had this treatment showed itself particularly successful, due undoubtedly, as mentioned in the paper, to an anatomical structure which favors drainage. He believed that the science of otology has advanced to such a point that the saying, "Rather operate one case too many than one too few and witness a bad result," is no longer tenable.



REPORT OF THE TRANSACTIONS OF THE OTOLOGICAL SOCIETY OF NEW YORK.

By DR. ARNOLD KNAPP, SECRETARY.

MEETING OF MARCH 28, 1905. THE PRESIDENT, DR. E. B. DENCH,  
IN THE CHAIR.

Dr. BRYANT presented a patient showing an **unusual position of the lateral sinus**. The case had been operated upon for chronic otorrhœa and caries. In beginning the operation the sinus was found displaced and unusually far forward, not more than 1 mm from the posterior meatal wall. It was therefore necessary in order to continue the operation to proceed according to Stacke and open the antrum from the meatus. It was a case in which the ossicles had previously been removed without relief. The ear was dry in eight weeks. On looking into the enlarged meatus a bluish area could be seen posteriorly and externally which was the sigmoid sinus.

*Discussion :* Dr. GRUENING said that this was a case where the sinus would unquestionably have been injured in performing the ordinary Schwartze operation, and he had during the past winter encountered a number of cases where the sinus was displaced unusually far forward. He himself was of opinion that it was much safer to open the mastoid from below.

Dr. WHITING thought that this case presented a very remarkable appearance. He was especially surprised to find that the sinus was so blue; there apparently had been no formation of granulations on its surface. On pressure on the jugular vein, he noticed that this bluish area bulged outward distinctly.

Dr. BRANDEGEE presented a little **pocket case of ear instruments** which would be serviceable in emergencies. The case was of metal, and contained a set of specula, a cotton

carrier, six knives fitting into a universal holder, and other instruments. The case was made by Meyrowitz.

Dr. BRYANT presented a **wood carver's gouge** to be used in mastoid operations. He had used this instrument in the above-mentioned case, and thought that it was due to this instrument that the sinus had not been injured. He also attributed the rapid convalescence largely to the use of this instrument through which blows of the mallet on the patient's head had been avoided.

Dr. DENCH, without wishing to disparage this instrument, thought that an anteriorly displaced sinus could be avoided by the instruments with which we were perfectly familiar.

Dr. ADAMS inquired how this gouge was to be used. He himself was a great advocate of the curette.

Dr. BRYANT replied that the surgical use of the gouge was similar to its use in wood-carving. The motion of the cutting edge is slow therefore easily controlled.

Dr. WHITING thought that the chisels were better and that the same motion could be produced with a chisel.

Dr. GRUENING stated that the only accidents which he had seen had been made with a curette. He had seen the brain entered twice with a curette.

Dr. DUEL thought that the chisels could be replaced in a sclerosed mastoid by rongeurs, curettes, and other similar instruments, especially with a view to avoiding concussion, which is of considerable importance in cases of brain complication.

Dr. PHILLIPS was also of this opinion, and thought that other instruments should be used in preference to the chisels.

Dr. ADAMS described two cases of **sinus thrombosis, with excision of the jugular vein**. One in a child, and the other a man of fifty years.

In the first case, "a child." On admission to the hospital, I operated upon him for mastoiditis, and found the mastoid completely broken down and filled with pus. There were some granulations on the sinus, but as there were no evidences of sinus thrombosis I did not open it. Two days later, he had a temperature of 105°. I decided to open the sinus, I found it thrombosed half way back to the torcular and down below the bulb. I did not try to get a return flow from below by means of the curette, as I was convinced that I would be compelled to carry my curette down too far and dislodge some particle that would

be carried in the circulation. I therefore excised the jugular vein from a short distance below the omohyoid muscle; the child made an uneventful recovery.

The second case was that of a man who had fallen from a scaffolding five weeks before. There was made a diagnosis of a fracture of the base of the skull. He was discharged from Roosevelt Hospital as cured. He entered the Eye and Ear Infirmary a few days after his discharge from Roosevelt with a temperature of  $104^{\circ}$ . Profuse discharge from the right ear, extreme tenderness over mastoid, and with a sinking superior posterior canal wall. At the operation for mastoiditis, the mastoid was found completely filled with pus, and carious bone was found extending back over the cerebellum, where a blood clot was uncovered. This had become infected, and was partly purulent. The dura around about it was also inflamed. This purulent blood clot was removed. The cerebellum over the external auditory canal was uncovered for the space of about one inch in diameter, as the bone here was also carious. Here was found a localized pachymeningitis. Two days later the temperature rose to  $105^{\circ}$ , the sinus was then explored, and a clot was found extending from near the torcular side, but none from the bulb. The jugular vein was then excised. Patient did perfectly well for a week, then his temperature rose to  $103^{\circ}$ , and remained so for two days; after that there was gradual convalescing. In both cases the neck wounds were sutured together; they both, however, became infected and had to be opened the second day. After that they were dressed as open wounds. I have given up the scraping of the clot from the region of the bulb with the curette, as I think it is a dangerous proceeding.

Dr. WHITING does not sew up the neck wound in cases where the jugular vein has been excised, as they have always become infected. He thought that, even if the vein was removed, some of the sheath which was infected remained in the wound. He inquired whether pus oozed out from the region of the bulb, or whether the sheath was responsible for the infection in Dr. Adams's case.

Dr. ADAMS replied that there was no pus seen.

Dr. GRÜENING always keeps the neck wound open, even if there is fluid blood in the vein, because in his experience this subsequently breaks down. He had observed fifty-three cases of mastoiditis since the first of the year, which included some cases

of sinus thrombosis. They all did well except the diabetic cases.

Dr. DENCH said that in most of the cases where he had excised the internal jugular, the neck wound had been sutured throughout. Primary union had occurred in over half the cases. In a few, it had been necessary subsequently to open the wound throughout its entire length, and in a few others there had been one or two stitch abscesses, the remainder of the wound healing throughout by primary union. He thought that it was a distinct advantage to close the wound by sutures, unless there was so much breaking-down of tissues in the neck as to make the operator feel sure that the wound would become infected. If, subsequently, it was necessary to take out the sutures, no damage had been done by closing the wound primarily. In cases where there was danger of infection from the upper end of the jugular vein, he suggested that the plan recommended by Grunert might be followed—of suturing the upper end of the vein into the upper angle of the wound.

Dr. GRUENING remembered a case in which the temperature rose to  $107^{\circ}$ . He was afraid that he was going to lose his patient, but on opening up the neck wound, which had become infected, the temperature dropped.

Dr. DUEL was in the habit of leaving the wound open at the bottom and introducing packing. He thought that the appearance was distinctly improved if superficial sutures could be introduced.

Drs. GRUENING and ADAMS had followed out this plan but had not found it sufficient. In cases which are left open by the use of strapping, the cicatrix will be just as little disfiguring.

Dr. MCKERNON reported on a case of **sinus thrombosis with jugular involvement**. A child twenty-six months of age suffered from tonsillitis. Five days later, pain in the right ear. Paracentesis was performed after 12 hours, giving staphylococcus and pneumococcus infection. T.  $103^{\circ}$ . The temperature was down for 5 days, then rose. Mastoid symptoms were present and an operation was decided upon. At operation only 3 or 4 drops of pus were found in the antrum. The rest of the mastoid was healthy. T.  $99^{\circ}$  for 8 days, then shot up to  $104^{\circ}$ . The wound had looked in very fair condition but then did not appear so clean. The sigmoid groove was covered with boggy granulations. These were removed and a wet dressing applied.

The temperature stayed up for 36 hours. At change of dressing it was noted that the granulations had re-formed. A diagnosis of thrombosis was made, and at operation the sinus was exposed. It appeared whitish and yellow inferiorly. Incision at knee. No bleeding at either end. A firm gelatinous clot was removed with curette, producing free hemorrhage. Anteriorly the clot was firm and organized, and after removal perfectly free hemorrhage resulted. The child stood the operation well. No stimulation was necessary. Temperature dropped to  $102.6^{\circ}$ , then  $104^{\circ}$ , then to  $101.5^{\circ}$ . The child was not so well, though the wound looked clean. The temperature suddenly rose to  $106^{\circ}$ . Though there were no external jugular symptoms, it was decided to expose the jugular vein, and the vein was resected from the clavicle to the bulb. It contained a clot in the upper part. No pus, but softening. The facial vein was also found thrombosed. The sheath was distinctly involved, and was surrounded by completely disintegrated glands. The wound in the neck was left open and transfusion was practised. The child made an uninterrupted recovery. He was of the opinion that if the glands and the sheath were not involved, the wound in the neck could be closed. The pathologist's report shows that the walls of the vein and sheath were infiltrated with staphylococci.

*Discussion:* Dr. GRUENING mentioned a recent case of sinus thrombosis where he had tied the jugular vein and after incising the sinus and removing the clot profuse bleeding took place from the bulb, showing that the jugular may be involved even if bleeding occurs, and that the recurring flow of blood took place presumably from the petrosal sinus. He thought it was very important to remove the glands in the neighborhood of the jugular vein.

Dr. HARRIS wished to ask Dr. McKernon to state his indications for resection of the jugular vein.

Dr. McKERNON: If the clot is healthy, pus be absent, and there is a free return flow and no jugular vein symptoms externally, he is inclined not to ligate the jugular vein.

Dr. ADAMS stated that he had given up scraping out the clot from the region of the bulb with a curette as being a dangerous proceeding.

Dr. GRUENING thought that the ligation of the jugular vein if practised in the region of the cricoid cartilage was a very simple procedure.



Dr. MCKERNON, from the experience of his last case, was rather inclined to tie the vein more frequently than he had been in the habit of doing.

Dr. BRYANT spoke of **deaf-mutism following ptomain poisoning**. A child two years and seven months old suffered from gastro-enteritis after eating ice-cream. One week later the child became deaf and dumb, could not walk, and lost co-ordination. The Doctor, because of the aphasia, was inclined to regard this as a process in which the ganglion cells in the brain had been destroyed by the poison.

He also described auditory **illusions** and **hallucinations** of voices occurring, like tinnitus, in chronic catarrhal otitis media. The dependence of the hallucinations on tinnitus is shown by the fluctuating of the hallucinations in the same manner as the tinnitus would fluctuate, increasing at night, in a still place, on stooping, or on lying down. The five cases which had come to the aural clinic had improved very satisfactorily; three had been cured entirely of the voices and had not gone on to the more grave mental alienation which is expected in such cases. The remaining two disappeared from view after showing marked improvement.

Dr. PHILLIPS remembered a case of chronic aural catarrh with diminished hearing and tinnitus. The patient heard trains constantly. There were other signs of hysteria.

Dr. GRUENING had recently observed **a fatal case of erysipelas**. A woman fifty-six years of age suffered from grippe, headache, discharge from the ear, tenderness over the mastoid process, but no temperature. At operation pus was found in the antrum, the tip involved. The sinus was superficially placed. The overlying bone was removed. The sinus appeared perfectly healthy. Two days later, the temperature rose to  $103^{\circ}$ , with an erysipelatous rash about the upper angle of the wound, with vesicles on the auricle. The pulse was irregular, and there was diarrhoea. T.  $105^{\circ}$ . The patient was irrational. The erysipelas continued to spread and involved the other ear. Pulse 120, respiration 20. The patient became comatose and died from paralysis of respiration.

At autopsy sinus thrombosis and abscess of the cerebellum were found present. The symptoms of these most important complications were completely masked by the attack of erysipelas.

Dr. ARNOLD KNAPP stated that Macewen mentions a form of sepsis characterized by gastro-enteritis and an eruption.

Dr. TOEPLITZ remembered a patient, upon whom he had performed the radical operation, who, four days later developed an attack of erysipelas and died on the tenth day with symptoms of meningitis.

At autopsy a purulent meningitis and superficial ulceration of the brain were found.

Dr. MCKERNON said that the paralysis of respiration in Dr. Gruening's case was somewhat similar to one which he had observed three years ago in a patient on whom he was about to operate, where the respiration ceased and the pulse remained good. Though artificial respiration was kept up for many hours, the case died.

At autopsy a temporo-sphenoidal abscess was found which communicated with the posterior cranial fossa.

Dr. GRUENING spoke of similar symptoms being produced by cerebellar abscesses.

Dr. TOEPLITZ described a radical operation which he had performed, where there was considerable swelling and reaction produced from the use of iodoform gauze in a patient with apparently an idiosyncrasy for iodoform.

He also related a case of acute mastoiditis where after paracentesis the symptoms were relieved except the tenderness over the mastoid. The Schwartze operation was performed and the patient did perfectly well for seven weeks, then very violent headache set in. Another paracentesis was followed by profuse discharge. He examined the fundus of the right eye and thought that the disk was swollen. The headache continued for three weeks. The wound presented some swelling in its inferior parts. Another operation was performed and nothing was found. Subsequently a swelling appeared in the canal, which was opened and an enormous quantity of pus was evacuated. The patient then recovered.

Dr. HARRIS: In regard to the profuse discharge after acute otitis being an indication for the mastoid operation, Dr. Harris wished to relate the case of a man nineteen years of age, where at the opening of the drum all the symptoms were relieved except the otorrhœa, which continued in large quantities for six weeks. There was a slight sagging of the canal wall. The patient got well without any operation.

Dr. BERENS spoke of a case with **mastoid symptoms after a head injury**. The patient had fallen on his chin, with bleeding from the ear, no cerebral symptoms but shock. The drum membrane was found ruptured, but the canal walls were normal. Seven days later, pain in mastoid. Next day, chill and fever, with swelling behind and below the mastoid process, with a small furuncle on nape of the neck. Temperature  $103.5^{\circ}$ ; respiration 24; pulse 130. Patient extremely restless and complained of headache and pain in back of neck. Owing to the possibility of there having been a fracture of the base, it had to be decided whether mastoiditis was present, and an exploratory operation to be made. The mastoid process was found healthy, but there seemed to be numerous hemorrhages and serum. Four days later, the patient suffered from a chill, temperature rose to  $103^{\circ}$ , a red spot appeared on the opposite cheek, which increased in size and developed into an ordinary boil. Uninterrupted recovery. The case is of interest in connection with the discussion of erysipelas earlier in the evening.

Dr. HASKINS was reminded of a case somewhat similar, where the patient had fallen on her occiput, was partly unconscious for some minutes, and later suffered from pain. There was a hemorrhage in the drum membrane. Two weeks later, a swelling appeared behind and below the ear, with vomiting. The ear itself was apparently normal. T.  $102^{\circ}$ . The patient at his suggestion was admitted to the hospital for observation. An ice-bag was applied to the mastoid process and calomel was given internally. A paracentesis was performed and some serum escaped. The pain was soon relieved and the patient recovered.

REPORT ON THE PROGRESS IN OTOLOGY DURING THE SECOND QUARTER OF THE YEAR 1904.

BY PROF. ARTHUR HARTMANN, BERLIN.

Translated by Dr. ARNOLD KNAPP.

ANATOMY AND PHYSIOLOGY.

112. **Iwanoff.** On several topographical changes in the temporal bone depending on the form of the skull. *A. f. O.*, vol. lxi., p. 76.

113. **Wittmaack.** On the demonstration of medullary nerve sheaths and of medullary envelopes of ganglion cells in the auditory nerve. *A. f. O.*, vol. lxi., p. 18.

114. **Courtade.** History of the anatomy of the ear. *Arch. internat. d'otol.*, etc., 1904, p. 881.

115. **Chalupecky.** On colored hearing. *Wien. klin. Rundschau.*, No. 21, 1904.

116. **Bukofzer.** On the influence of narrowing of the "insertion tube" on the pitch of a tone. *A. f. O.*, vol. lxi., p. 104.

112. After measuring fifty-five skulls in which there were many pronounced dolicho- and brachy-cephalic ones, the author comes to the following conclusions:

1. The measure of the base of the skull differs only slightly in the various forms of the skulls. The base of the skull does not at all depend upon the form of the skull.

2. The rotation of the pyramids is greater the deeper the transverse sinus dips into the mastoid process. A connection between relative shortening of the base of the skull and rotation of the pyramids does not exist.

3. The floor of the middle cranial fossa is situated in dolicho-cephalic skulls in all its parts at the same level; in brachycephalic skulls it is externally deeper than internally.

4. The transverse sinus is situated in brachycephalics more externally though not more anteriorly than in dolichocephalics.

5. There is absolutely no constant index for displacement of the sinus.

6. Some temporal bones present a remnant of the squamo-mastoid fissure in the form of a sulcus running along the parietal incisure, or in the form of a depression or a series of openings.

7. The mastoid processes in dolichocephalics are generally pneumatic (Koerner).

8. Dehiscences in the tegmen were not found in any of the dolichocephalic skulls (confirming Koerner's investigations).

9. In dolichocephalics the opening of the meatus is circular, while in brachycephalics it is more horizontally oval (confirming Ostmann's statement).

HAENEL.

113. WITTMACK has been able to demonstrate medullary envelopes in the case of the ganglion cells of the spiral ganglion in guinea-pigs. He used a special method for preparing the specimens, which consisted in a freshly made Mueller-solution with 10 % formalin and 3-5 % acetic acid, then 2-3 % nitric-acid-formalin solution. The sections were stained in 2 % osmium and 5 % pyrogallic-acid solution. A bluish-black margin surrounds the axis-cylinder of the nerve-fibre and ganglion cells. After staining with Weigert's chromatin solution, the neurokeratin framework in the envelope of the nerve fibre as well as of the ganglion cells is distinctly visible.

HAENEL.

114. A short historic survey on the development of the anatomical knowledge of the human ear up to the beginning of the nineteenth century.

OPPIKOFER.

115. The article begins with a description of the development of the theory of colored hearing and the citation of old histories. In each case the light sensation occurs when the hearing is stimulated in a certain definite manner, or when through a particular reminiscence a similar stimulation is produced. A personal observation follows. The colored hearing occurred in a patient five years of age as she began to play the piano: *c* was yellow, *d* pink, *e* pale green, *f* gray, *g* light brown, *a* dark brown, *h* black. The colors were similar on the various days of the week. The vowel *a* is dark, *e* green, *i* whitish, *u* bluish-gray. The consonants are colorless. Of the numbers, 5 is red, 6 and 9 equally green.



In order to hear colors, a kind of disposition is necessary which can be explained by changes in the organism or in anatomic variations.

The theory of double perception is discussed from its anatomic foundation. The double perception is simply regarded as a sign of hyperæsthesia of the cerebral cortex—in other words, a cortical hyperæsthesia. As peculiarities of temperament are inherited, so may colored audition be inherited. Similar sensations were produced after poisoning by alcohol, haschish, and santolin. The author regards this double perception as a moderate variation of a physiologic condition, resulting in an augmentation of normal sensations following increased excitability of the brain.

WANNER.

116. BUKOFZER has determined by graphic notation the pitch of the tones which were sung on a broad and narrow tube, and shows that in the well-known experiment of Spiess the tone is changed in regard to its number of vibrations and not in its clang tint as Barth says. The difference in the pitch varies in the author's experiments about half a tone and in some cases almost an entire tone.

HAENEL.

#### GENERAL.

##### a.—REPORTS AND GENERAL COMMUNICATIONS.

117. **Ferreri.** *Report of the Oto-rhino-laryngological Clinics of the Royal University in Rome*, i., 1903, Verlagsbuchhandl. G. D. Antonis, Rom.

118. **Haug and Thanish.** *Report of the Royal University Ear Clinic in Munich*, 1903.

119. **Strubell.** Statistics and reports of the year 1903. *M. f. O.*, 1904, No. 4.

120. **Stein.** The limits of deafness. *Nordisk medicinsk Archiv*, 1903, part I, chap. iv.

121. **Freund.** On the value of early examination of the ears for the determination of liability after accidents. *Heilanstalt für Unfallverletzte*, Breslau, 2, *Wissenschaftliche Mitteilungen*.

117. In this report, the important cases which occurred during the year 1903 are not only described, but the various articles which have been published by the physicians and students of the clinic during the past year are added. The report thereby gains greatly and is most readable.

RIMINI.

118. Report of the attendance at the Polyclinic during the year 1903. HAENEL.

119. The author has employed lactate of yohimbinum to produce anæsthesia for small operations, and confirms the experience of others that the swelling tendency of this agent on the mucous membrane was of value in the removal of hypertrophic mucous membrane of the lower turbinal. The beginning hemorrhage was severe though no secondary hemorrhage occurred.

In the atrophic processes of the nasal mucous membrane the use of yohimbinum is apparently without advantage.

Experiments with euguform as a powder after operations on the nose show that it acts as a hæmostatic and as a disinfectant.

PIFFL.

120. STEIN describes the difficulties encountered in determining the loss of earning power in the deaf. This determination would be very much facilitated if it were possible to know the amount of hearing required to fulfil the various professions. The author has himself collected 312 cases of deafness, and has divided them into small groups as Zwaardemaker did, leaving out of account the first group, which includes the professions for which no hearing is required. There then remained four groups. The required hearing power is given for each group, which was determined after noting the greatest hearing distance which was complained of and the shortest hearing distance which was not complained of; the intermediate value gave the necessary hearing distance. The hearing for whisper was as follows: For those who had no particular use for their hearing, but required enough to be able to get along on the street, at least 100cm. For women in various callings 150cm, while male workmen require a much better hearing. Laborers working in groups, 200. For government employes, 300 to 700. Finally, a hearing power of over 700cm was necessary for school children, physicians, musicians, midwives, etc. MOELLER.

121. The author, a neurologist, demands that the practising physician should examine the ears immediately at the time of the first examination of an accident case. This is unquestionably necessary in those cases in which a concussion of the head or a general concussion of the body occurred. The importance of an early examination of the ear in the various forms of traumatic neurasthenia is emphasized. In traumatic hypochondriasis the

early examination of the ear is without importance, but in the case of hysteria a knowledge of the condition of the ear first points to the possible diagnosis of hysteria. Though the diagnosis of traumatic neurasthenia is little aided by an early examination of the ear, this is of the greatest importance in the concussions of the head, in which conditions of neurasthenic irritability, especially of vasomotor nature, develop. The symptoms of a lesion of the labyrinth impress upon the indefinite nervous symptoms the mark of a traumatic case. In a case reported by FREUND four years after the accident, a lesion of the labyrinth was determined by an aural examination. Finally, the importance of the treatment of those injured by accidents is entered upon in which the early diagnosis of an aural complication is made.

SUCKSTORFF.

ö.—GENERAL PATHOLOGY.

122. **Koerner.** Tuberculosis of the ear and of the temporal bone. *Handbuch der Therapie der chronischen Lungenschwindsucht*, herausgegeben von Dr. H. Schröder und Dr. F. Blumenfeld.

123. **Kingsford.** The channels of infection in tuberculosis of childhood. *Lancet*, Sept. 24, 1904.

124. **Blau.** Experimental studies on changes in the ear after poisoning with salicylate of soda. *A. f. O.*, vol. lxi., p. 220.

125. **Hammerschlag.** On disturbances of hearing in children and their relation to the psychical and intellectual development of the child. *Wiener med. Presse*, Nos. 14, 15, 1904.

122. After a short introduction, the author describes the development of tuberculosis of the temporal bone of the ear, then extension from the primarily diseased area to other parts of the ear and of the temporal bone, the mixed infections, and the extension of the morbid process from the ear and temporal bone to the interior of the skull and the general organism. In the chapter on clinical course and diagnosis, a case is described of nodular tuberculosis of the auricle and one of tuberculous perichondritis (Haug). In the chapter on tuberculosis of the middle ear and of the temporal bone, the well-known classical picture is described where a tuberculous suppuration in the middle ear occurs in the final stages of chronic pulmonary tuberculosis (painless onset, multiple perforations, roughened bone, etc.). Surgical intervention is not to be recommended at this stage. Thus far no results have been obtained in tuberculin injections; hydrogen peroxide, iodoform, and insufflations of boric acid with a protective bandage

is the only treatment. In the stationary form of phthisis and even before the appearance of any clinical symptoms of pulmonary tuberculosis, tuberculosis of the ear and of the temporal bone may develop without any pain. On the other hand, the so-called atypical forms may come on with pain. Seven personally observed cases of this so-called atypical form are described, which are usually observed in cases of tuberculosis in children and young adults which run an acute course. The conditions found at operation were not always at first glance suggestive of tuberculosis. A peculiar condition which the author observed twice was the softening of the entire spongiosa while the lamina vitrea remained intact. The infection in all of these seven cases occurred presumably through the blood-vessels. One case is of interest which recovered notwithstanding an eruption of nodules on the wall of the sinus. There are five recoveries among the seven cases. Treatment consisted in the thorough removal of the morbid processes, which did not always require the radical operation. The treatment was iodoform and general. As Grimmer has observed the extension of tuberculosis from the pharyngeal tonsil to the tympanum, and as tuberculosis of the pharyngeal tonsil cannot always be clinically determined, the removal of the hypoplastic pharyngeal tonsil can be regarded as a prophylaxis against aural tuberculosis. Finally, all cases of otorrhœa occurring in patients with tuberculous ulcerations of the nose and naso-pharynx should not be regarded as tuberculous. In a short chapter on tuberculous diseases of the labyrinth, the author states that of the so-called labyrinth symptoms only severe deafness is apt to be present. The rare occurrence of miliary tubercles in the auditory nerve in tuberculous meningitis is of no particular importance.

SUCKSTORFF.

123. Of 339 cases, infection occurred : through the fauces in 5, through the middle ear in 4, through the pharynx in 4; total 13.

ARTHUR CHEATLE.

124. Similarly to Wittmaack's experiments with quinine poisoning, BLAU has been able to show, after numerous animal experiments, that after salicylic acid the changes in the ear consist in definite disturbances of the ganglion cells, in the spiral ganglion and in the vestibular ganglion, but that hemorrhages should be regarded as secondary.

HAENEL.

125. The author gives extracts from the various writings of

Bezold on the examination of schools, functional examination, and deafmutism, and adds theoretic considerations on the duty of the school physician and the place of deaf children in schools. School children, according to the author, should possess a hearing power of 4m for ordinary conversation. Children with poorer hearing can be sent to school, but should be dismissed if after a certain length of time they are not able to keep up with the normal-hearing children. Deaf children should be instructed in special classes for the deaf, or, if instruction from mouth to ear is impossible, should be admitted to deaf-mute institutions. The school physician should, at the beginning of the year, examine all the children for their hearing and the condition of the drum. If the children do not get along at school, these hearing examinations should be repeated frequently throughout the year, and every child after recovery from an acute infectious disease should again have its ears examined.

WANNER.

C.—METHODS OF EXAMINATION AND TREATMENT.

126. **Ostmann.** Clinical studies on the analysis of disturbances of hearing. Part II., on the analysis of disturbances of hearing by obstructing cerumen. *A. f. O.*, vol. lxi., p. 116.

127. **Bing.** On localization of tone perception. *A. f. O.*, 1904, No. 5.

128. **Juergens.** Additional investigations on the diagnostic importance of the rhodan reaction in the saliva of ear patients and in some other diseases, as well as on the presence of ptyalin in the saliva of ear patients. *M. f. O.*, 1904, No. 5.

129. **Pick.** A simple electric examining lamp. *Münchn. med. Woch.*, 1903, No. 42.

130. **Richter.** A new instrument for the massage of the middle ear and a manometer apparatus to examine and treat tension of the drum membrane and sclerosis. *Wiener klin. therapeutische Wochenschrift*, No. 20, 1904.

131. **De Lavarenne.** Prophylaxis in the treatment of deafness. *La presse médicale*, 1904, p. 369.

132. **Rosenfeld.** An improved tonsillotome. *Deutsche medic. Wochenschrift*, No. 19, 1904.

126. Eight ears were examined according to the old Conta's method and eight others with the objective hearing measure. The hearing was found diminished in 56% in the higher, in 68.7% in the lower limits. The higher the lower limit of hearing was advanced, the greater was the diminution of hearing for the deepest tones of the pathologically diminished range. The same relations appear to exist for the upper-tone limit. The defect of the upper tones from cerumen, according to the author, is not to be



regarded as a labyrinth symptom nor due to the associated vertigo. He is more inclined to regard this defect as the result of a disturbance of the resonance in the auditory canal. The hearing tests showed the same curve in disturbances of the hearing from cerumen and can be regarded as a perfectly definite form. These tables of hearing examinations can only be applied to forks which resemble his own.

HAENEL.

127. The author considers some of Urbantschitsch's observations in the light of his own theory. The article is interesting but not suited for a short review.

PIFFL.

128. The author has continued the investigations which he published in 1901, and gives the results of fifty-three additional cases. His conclusions are practically as follows:

1. The distinct presence of rhodan in the saliva from the parotid shows definitely that the middle ear is healthy or only very slightly affected.

2. The absence of rhodan reaction shows that middle-ear disease is a very severe or chronic one if affections of the general organism can be excluded.

3. The diminution of the rhodan reaction shows a fair degree of infection of the same side, and is a good gauge of the intensity of the morbid process. In the course of an ear disease the reappearance of the rhodan shows a favorable course and absence an unfavorable one.

4. In an old middle-ear trouble, viz., dry perforation, the absence of the rhodan reaction shows (a) that the tympanic structures are destroyed, or (b) that the disease has not come to a stop and is apt to recur, and (c) a return of the reaction shows that the diseased process in the middle ear has surely ceased.

5. As the rhodan reaction can be tested even in cases where otoscopy is not possible, and on account of the above-mentioned reasons, it is of considerable aid in diagnosis and prognosis in middle-ear disease.

PIFFL.

129. The lamp of a 16-candle-power light is covered with plaster, leaving an opening of about 5cm in diameter. The crown lamp, which the reviewer has described (*Münchn. med. Woch.*, 1904, No. 2), seems to be better.

SCHEIBE.

130. The author describes an apparatus which seems to be principally to act by suction. The apparatus resembles a syringe, consisting of a rubber bag which is distended by a screw after

introduction into the auditory canal. By attaching this to a motor a vibratory massage can be exerted upon the drum.

With this apparatus in chloroform narcosis in deaf-mutes or the very deaf, a lessening of the ankylosed joints is possible, according to the author. With the aid of a manometer, which was connected with the apparatus, it was determined that the drum can stand a positive pressure of 1 and a minus pressure of  $\frac{1}{2}$  atmosphere. Larger variations in pressure are painful. The former instrument is put into the hands of the patient and can be used two to three times every day.

The results are not favorable even with this apparatus in old cases. In the three reported cases the benefit in recent cases seems also to be doubtful.

WANNER.

131. Certain springs of Luchon give off sulphur vapors, on contact with air, which can be received in glass vessels. On inhaling these vapors through the nose and mouth, and after introducing them into the middle ear with a catheter, an unusual beneficial action seems to be exerted on those ear diseases which result from an affection of the naso-pharynx.

OPPIKOFER.

132. ROSENFELD objects to the tonsillotomes which are most in use and which resemble the Fahnenstock or the Mackenzie, because it is not possible to remove both tonsils without changing the grasp of the instrument. This change of the grasp is very inconvenient and makes the operation unnecessarily difficult. Moreover, the usual tonsillotomes are difficult to disinfect and keep from rusting. Rosenfeld has constructed a tonsillotome with a double-cutting knife and a protecting guard. The writer believes that a double-cutting knife is perhaps an improvement, but he remembers perfectly well that the late Professor Stoerk, of Vienna, was able to remove both tonsils with a Fahnenstock instrument without changing the grasp; nor as regards the disinfection of the instrument does the new model of Rosenfeld offer any advantage.

NOLTENIUS.

*d.*—DEAFMUTISM.

133. **Alexander.** On the pathology of congenital deafness. *A. f. O.*, vol. lxi., p. 183.

The labyrinth of a deaf-mute patient, thirty-five years of age, who died of pyæmia was examined, and showed the following conditions:

Atrophy of the auditory nerve and all of its ganglia; atrophy of the static nerve terminals (macula utriculi, macula sacculi, cristæ ampullares); atrophy of Corti's organs, especially of the sensory epithelium; circumscribed atrophy and degeneration of the spiral ligament of the crista spiralis and of Corti's membranes; deformity of the membranous canal of the cochlea; arrest of development of the capsules of the cochlea. The most remarkable changes were found in the bony cochlea. The individual features should be read in the original paper. It is of considerable interest to observe the similarity and partial coincidence of the anatomical conditions, especially of the vestibular apparatus, with the conditions found in deaf-born cats and dancing mice.

HAENEL.

#### EXTERNAL EAR.

134. **Koerner.** On herpes zoster oticus (herpes of the auricle with paralysis of the auditory and facial nerves). *Münchn. med. Wochenschr.*, 1904, No. 1.

135. **Haug.** Anthrax pustule in the auditory canal. *A. f. O.*, vol. lxi., p. 275.

136. **Barth.** External ulcerating otitis. *Deutsche med. Wochenschr.*, No. 17, 1904.

137. **Bar.** External hemorrhagic otitis. *La presse oto-laryngologique Belge*, 1904, No. 5.

138. **Ferreri.** On exostosis of the external auditory canal. *Arch. ital. di otol.*, etc., xv., No. 5.

139. **Guarnaccia.** A new method to cure otomycosis aspergillina. *Arch. ital. di otol.*, etc., xv., No. 4.

140. **Halász.** A case of a foreign body extracted from the ear with hydrogen peroxid. *A. f. O.*, vol. lxi., p. 102.

141. **Buerkner.** A case of destruction of the drum membrane from lightning. *Berl. klin. Wochenschr.*, 1904.

142. **Ménière.** Rupture of the drum caused by the blow of a hand on the ear. *Arch. internat. d'otol.*, etc., 1904, p. 811.

143. **Urbantschitsch.** On the etiology of pearl-like epithelial structures on the drum membrane. *A. f. O.*, vol. lxi., p. 24.

134. The disease occurred in a patient who had been operated upon for a cancer of the breast. The paralysis of the facial and auditory nerves was not complete and improved rapidly. There is no mention made of vertigo or tinnitus. The author believes the disease extended from the trigeminus by anastomosis to the facial nerve, and from the latter in the porus acusticus to the adjoining auditory nerve.

SCHEIBE.

135. The author observed in a veterinary surgeon who had infected his arm with anthrax, that after the development of an extensive furuncle two small pustules appeared in the auditory canal, which healed without suppuration but were found to contain anthrax spores.

HAENEL.

136. BARTH has observed in the course of years a disease of the auditory canal which at the beginning resembles the ordinary furunculosis, but differs in its subsequent course, so that he is inclined to regard it as a peculiar disease and gives it a new name. The main difference consists in the way in which the disease reacts to the treatment which Barth is in the habit of giving in furunculosis. The canal is tightly packed with gauze moistened in bichloride of mercury, and the formation of furuncles is either prevented or after the evacuation of the necrotic plugs the disease heals rapidly, while in the external ulcerating otitis furuncles are not formed, but small painful excoriations appear, which do not heal under the ordinary treatment. In these cases ointments should be applied from the beginning.

NOLTENIUS.

137. BAR reports two cases of this rare disease which is only mentioned in Politzer's text-book. It is characterized by hemorrhagic vesicles in the bony part of the auditory canal, accompanied with severe symptoms. On the lower and occasionally on the posterior wall there are small dark brown tumors, which are soft and elastic, rupture easily, and evacuate blood. The cause is obscure and the inflammatory character of the disease cannot be explained. This hemorrhagic otitis occurs in injuries to the ear, in congestions of the vessels of the head and of the neck, in severe infectious diseases, and in severe general diseases, as scurvy, diabetes, and nephritis. Schwartze has observed in severe middle-ear inflammations hemorrhagic vesicles in the external canal.

The disease reaches its acme in three days and heals in from eight to fourteen days. Relapses are not unusual, though recovery is the rule. The function is usually restored, though the process should be treated with respect as severe infections may follow.

The treatment consists in opening the blebs and using some fluid antiseptic solution.

BRANDT.

138. After stating the etiology, frequency, and symptomatology

of exostoses of the external auditory canal, two cases are reported in which the exostoses were removed by operation. The tumors were examined histologically. RIMINI.

139. Three cases of otomycosis were treated with hydrogen peroxid. The result was so prompt and satisfactory that the author recommends the treatment for these affections. RIMINI.

140. Instillations of hydrogen peroxid were made on account of the associated otorrhœa, and succeeded in removing the foreign body which had previously resisted all attempts at removal with the syringe. The author recommends this method for cases in which syringing does not succeed. HAENEL.

141. A perforation as large as a pea; the destroyed portion of the membrane collected together about the handle of the hammer so that it appeared as if surrounded by an uneven protruding mass. Coagula of blood were present on the handle of the hammer and the margins of the drum membrane; the tympanic mucous membrane smooth and dry. Four weeks after the traumatism, an exudative inflammation took place, which persisted for three weeks and then recurred. The perforation healed in three months. MUELLER.

142. In contradiction of the generally accepted rule of abstaining from all local treatment in cases of rupture of the drum membrane, MÉNIÈRE recommends spraying with hydrogen peroxid solutions. OPIKOFEK.

143. According to URBANTSCHITSCH, the cause is a dissemination of epithelial elements in the substantia propria of the drum membrane, usually of traumatic origin after paracentesis. In regard to their origin the epithelial pearls of the drum membrane are like the so-called dermoid cysts of Winiwarer. The author has observed a case in which, after paracentesis in the course of the following year, three epithelial pearls occurred in the incision of the drum membrane. HAENEL.

#### MIDDLE EAR.

##### a.—ACUTE OTITIS MEDIA.

144. **Hartmann.** The treatment of acute otitis media with 10 % carbolic-acid glycerin. *Deutsch. med. Wochenschr.*, No. 17, 1904.

145. **Lermoyez, Lubet-Barbon, and Moure.** The treatment of acute otitis media. *La presse médicale*, 1904, p. 284.



146. **Geronzi.** Pyæmia of the otitic region without sinus phlebitis. *Arch. ital. di otol.*, etc., vol. xv., No. 4.

147. **Gradenigo.** On paralysis of the abducens nerve of otitic origin. *Arch. ital. di otol.*, etc., vol. xv., No. 5.

148. **Citelli.** On paralysis of the abducens nerve of otitic origin and its clinical significance. *Arch. ital. di otol.*, vol. xv., No. 5.

149. **Mongardi.** A case of paralysis of the abducens nerve of otitic origin. *Arch. ital. di otol.*, etc., vol. xv., No. 5.

150. **Trifiletti.** Infections of the mastoid in the course of scarlet-fever. *Arch. internat. d'otol.*, etc., 1904, p. 807.

151. **Day.** A case of infective thrombosis of the lateral and sigmoid sinuses. *Annals of Otol.*, March, 1904.

144. Heine has stated that the instillations of 10 % carbolic-acid glycerin have one disadvantage, inasmuch as they obscure the picture of the drum membrane. In one case the drum presented a brownish appearance, like a mild eschar. HARTMANN believes that both of these observations were of accidental conditions, and that they have led to incorrect conclusions. In the case of children especially, the instillations of this agent sometimes act almost like a charm. The remedy not only relieves the pain, but even the healthy ear can stand a much stronger solution. In cases of severe inflammations, if this agent only produces a transient improvement, paracentesis of the drum should be performed. NOLTENIUS.

145. In acute catarrhal otitis media, these authors recommend rest in bed, warm compresses, and instillations of from 2½ to 10 % of carbolic-acid glycerin solutions. Paracentesis is indicated when the pain continues in place of considerable fever or decided diminution of hearing. In acute purulent otitis, the gauze which is introduced into the canal is changed once a day and a bandage applied. OPIKOFEK.

146. In the four cases reported, intense chills and pain in the joints were present. In one case the mastoid process was opened, but as the findings were negative the sinus was not exposed. All four cases recovered.

The diagnosis of aural pyæmia without sinus phlebitis was made in these cases, because the patients were comparatively comfortable in the afebrile intervals, and only moderate metastatic symptoms were present. RIMINI.

147. GRADENIGO observed paralysis of the abducens nerve on the same side in six cases of acute otitis media. One case succumbed to meningitis. From the similarity of the symptoms

in all of these six cases, the author believes that there is a distinct symptom-complex which follows an acute otitis media, with severe and persistent pain in the diseased ear and in the corresponding half of the head, and is later characterized by the appearance of the paralysis of the abducens nerve at an interval of between three and six weeks after the onset of the otitis.

RIMINI.

148. CITELLI reports a case of acute otitis media in which the characteristic symptom-complex, as described by Gradenigo, was present (intense persistent headache, paralysis of the abducens nerve on the same side).

Recovery took place after about two months without any operation.

RIMINI.

149. A patient, sixty-two years old, six weeks after the beginning of an acute otitis media, suffered from sudden and severe headache after vertigo and diplopia produced by paralysis of the abducens nerve. Recovery after one month.

RIMINI.

150. A boy, eight years of age, was taken ill with a left-sided acute purulent otitis and empyema of the mastoid process. After operation, uneventful recovery. Seven months later, the boy had scarlet fever. Two days after the onset of this disease, there was a collection of pus under the retro-auricular scar, which opened. The wound closed after one month. It is rather strange that the author, notwithstanding diligent search in literature, was unable to find a similar case recorded.

OPPIKOFER.

151. An acute otitis, with pain and otorrhœa of short duration. Emaciation and continued temperature. Operation showed no disease of the mastoid cells, but thrombosis of the sigmoid sinus. A complication of abdominal symptoms occurred, simulating an intercranial extension of the infection.

BRYANT.

*b.*—CHRONIC PURULENT OTITIS.

152. **Friedrich.** Anatomical findings in suppurations of the labyrinth. *Münch. med. Wochenschr.*, 1904, No. 5.

153. **Pagnat.** On ossified polypi of the ear. *La presse oto-laryngologique Belge*, 1904, No. 6.

152. The histological findings in six cases of suppuration of the labyrinth secondary to middle-ear disease, are described by the author. It is not stated whether the original trouble was

acute or chronic. In three or four cases the disease extended through the oval window. In one, well-marked fistulæ were present in the labyrinth capsules. They were usually secondary to disease of the semicircular canals.

The author does not bring any anatomical demonstration of the labyrinth fistulæ without pus which are frequently found mentioned in literature and depend upon incorrect observations during operation.

The inflammation in the labyrinth extends first to the perilymphatic space and then invades the endolymphatic cavity. The author does not recognize an isolated disease of the lateral structure.

The extension of the inflammation from the labyrinth to the meninges occurred most frequently along the aqueduct of the cochlea, and more rarely along the sheath of the auditory nerve. In this regard the aqueduct of the vestibule is not of great importance.

SCHEIBE.

153. The author adds a fifth case to the four previously published cases of ossified aural polypi (Bezold, Hedinger, Cocks, Kupuska).

BRANDT.

#### c.—CEREBRAL COMPLICATIONS.

154. **Trétrop.** Latent abscess of the brain. *La presse oto-larynologique Belge*, 1904, No. 6.

155. **Alt.** Operations in the posterior cranial fossa. *Wiener klin. Wochenschrift*, No. 19, 1904.

156. **Schulze.** Diagnostic mistakes in aural surgery. *A. f. O.*, vol. lxi., p. 1.

157. **Schulze.** A rare form of otitic gravitation abscess. *A. f. O.*, vol. lxi., p. 256.

158. **Sachs.** On the diagnosis of sinus thrombosis. *A. f. O.*, vol. lxi., p. 176.

159. **Voss.** Advances in the surgical treatment of otitic septic pyæmia. *Berl. klin. Wochens.*, 1904, No. 28.

160. **Grossmann.** On tuberculous sinus phlebitis. *A. f. O.*, vol. lxi., p. 30.

154. This case shows again that a severe fatal affection of the brain may give as its only symptom severe headache, and that even this may at times be absent. Fever may occasionally be present, vertigo and vomiting may be absent. If other severe diseases are present, as in this case, the diagnosis of a cerebral

abscess is very difficult. A facial paralysis may aid in the diagnosis when it is possible to locate the injury as a compression of the nerve within the skull.

BRANDT.

155. Report of two cases of cerebral abscess terminating in recovery, one after acute, the other after chronic purulent otitis. In both cases there was a fistula in the dura which led to the abscess. The abscess in the acute case was as large as a lentil and situated at the inner side of the sinus. In the chronic case, the abscess was as large as a bean and situated laterally from the sinus. The infiltrated dura was excised. In the acute case, the symptoms appeared three months after the beginning of the suppuration, with intense vertigo, headache, horizontal nystagmus, no change in the eye-grounds, no fever, no retardation of the pulse, no symptoms of defect.

In the chronic case, cholesteatoma was found in the canal. Double choked disk. Pulse 60, T.  $38.3^{\circ}$ - $39^{\circ}$ . Fistulæ in the mastoid process. Recovery after four weeks.

The author also reports upon three cases of thrombo-phlebitis.

1. Acute suppuration, thrombo-phlebitis of the transverse sinus, of the right jugular vein, metastatic pulmonary abscess. The thrombosed jugular vein could be palpated to within 2cm of the clavicle. The ligature was applied 1cm above the sub-clavicular vein. The discolored brown clots were removed. Fourteen days after ligation of the jugular vein, a small pulmonary abscess was opened. The pus contained streptococcus pyogenes. The wound in the neck was healed after three weeks, the pulmonary wound after four and one-half weeks.

2. Chronic suppuration with cholesteatoma. Thrombus of the sigmoid sinus. External pachymeningitis. Pyæmic fever lasting eight days. The sinus was excised and the thrombus removed. Recovery after fourteen days.

3. Pyæmic fever lasting for ten days. The incised sinus evacuated discolored thrombi and several drops of pus. Recovery.

WANNER.

156. In the following two cases the mistaken diagnosis of an intracranial lesion led to unnecessary operative intervention.

1. A woman with chronic purulent otitis presented a number of symptoms suggestive of a severe intracranial lesion. Lumbar puncture (slight turbidity, increased number of leucocytes, no bacteria) did not speak absolutely for meningitis but led to a suspicion of the presence of circumscribed meningitis. In the

subsequent course, after a second lumbar puncture the diagnosis of meningitis became impossible. It now seemed to be a brain abscess, which was first located in the temporal lobe (aphasia paralysis), then in the cerebellum (intense vertigo, functional disturbance of the labyrinth). In both localities puncture was without result. The autopsy showed a normal brain, chronic nephritis, so that the symptoms were subsequently decided to be uræmic. The moderate amount of albumen with a not appreciably diminished quantity of urine was regarded as the result of a cerebral disease. Microscopical examination of the urine was not undertaken. This might have led to the correct diagnosis.

2. A boy with chronic purulent otitis gave a history of chills; an infiltration of the soft parts towards the occiput was present, so that an involvement of the sinus was supposed. In addition, quite a number of symptoms pointed to meningitis. This was excluded by an absolutely negative result on lumbar puncture. The paralysis of the opposite side with an alteration of speech was therefore referred to an abscess in the left temporal lobe, and an operation was performed without result. The autopsy revealed neither an abscess nor an extradural suppuration and not a trace of a thrombus was visible in the sinus or in the bulb. The internal wall of the sinus was everywhere apparently normal. To explain the symptoms, a disease of the sinus (discoloration of the external wall) as found at operation could only be accepted, and it must be assumed that the enormous toxicity of the septico-pyæmic process (with irritative symptoms resembling meningitis and paralysis caused by focal disease) led in a short time to death though the disease of the sinus was still in its incipient stage.

HAENEL.

157. In a case of cholesteatoma, an abscess of the cerebellum had led to a thrombosis of the adjoining knee of the transverse sinus, with an extension of the thrombus along the superior and inferior petrosal sinuses to the bulb of the jugular vein. The sigmoid sinus was empty from pressure of the cholesteatoma. Thrombosis of the petrosal sinus had produced a deep-seated extradural abscess situated at the anterior margin of the foramen magnum, which had gravitated along the medulla oblongata to the second cervical vertebra and passing between the skull and the first cervical vertebra with the vertebral artery had perforated into the muscles underneath the deep cervical fascia. The occurrence of this extradural abscess was favored by an unusual development of



the petrosal sinus and by the broad communication of the inferior petrosal sinus with the basilar plexus. HAENEL.

158. SACHS has observed, just as Piffi, that the exposed sinus shows undulating movements of its wall during deglutition. He recommends for clinical and anatomical investigation :

1. Whether the deglutition phenomenon is so constant in the healthy sinus that in its absence the diagnosis of thrombosis may be made.

2. Whether it is present when there is a small obturating thrombus. HAENEL.

159. This is a report of the experience which has recently been made in the ear clinic of the Charité in operative treatment of thrombosis of the jugular bulb. In one case, where after incision and evacuation of the thrombus with ligation of the jugular vein no permanent fall in temperature resulted, the bulb was exposed according to the Grunert-Piffi method by removal of the anterior and lower canal wall, and the floor of the tympanum then incised and irrigated. Before the final recovery, several chills with meningeal symptoms occurred. On the other hand, the previously present diazo-reaction disappeared immediately after the second operation. In the second case, the bulb was exposed by a method devised by Voss, which consists in chiselling away the bone from the mastoid wound above the deepest part of the sinus, which has been previously exposed as far as possible and evacuated with a favorable result. According to Voss, this method is simpler than that devised by Grunert and Piffi. Further observations must show whether it is applicable in all cases. MUELLER.

160. In a child five and one-half years old, who had suffered from otorrhœa after scarlet fever for one year, the mastoid process was opened, the sinus operation was performed, and the patient subsequently died from tuberculous meningitis, which had been diagnosticated by lumbar puncture during life. At the autopsy the following interesting microscopic condition was found:

The wall of the sinus is healthy in its outer and middle layers except at the site of perforation. The intima are completely transformed to granulation tissue and infiltrated with thick foci of epithelioid cells. There are also giant cells with numbers of tubercle bacilli and beginning caseation. The thrombus presented, in addition to the characteristic signs of a regressive

metamorphosis (caseation), also traces of organization, with the formation of infiltrating tuberculous granulation tissue. Five cases of tuberculous disease of the sinus were found in literature. Of the six cases thus far published, tubercle bacilli were found present in five. In four there was a miliary tuberculosis, which in one case was complicated with meningitis. In one, in addition to the tubercle bacilli, staphylococci and bacillus pyocyaneus were found in the thrombus. HAENEL.

d.—OTHER MIDDLE-EAR DISEASES.

161. **Frey.** On ankylosis of the malleo-incudal articulation. *A. f. O.*, vol. lxi., p. 234.

162. **Stein.** Osteomyelitis of the ossicles in chronic dry tympanic disease (lues hereditaria tarda). *A. f. O.*, vol. lxi., p. 169.

163. **Weidler.** The use of myelocene in catarrhal deafness. *Penn. Med. Jour.*, July, 1904.

164. **Squires.** A new sign of basilar meningitis. *N. Y. Med. Record*, March 26, 1904.

161. After describing twenty-five cases collected in literature, the author gives the result of two histological examinations. In the first case, both ossicles were connected by a bony bridge, which was situated perpendicularly to the plane of the joint and was directly connected with the bony substance of both ossicles. About the bony bridge the cartilage showed calcification. The ossicles were otherwise bound together by connective tissue.

In Case 2 the bony substance of the ossicles was very much reduced by a decided dilatation of the osseous canals. The hyaline cartilage was very much thickened. An articular fissure was not present. In the periphery the periosteum of the arteries was enormously thickened. In both cases the ankylosis was the result of a chronic inflammatory process in chronic purulent otitis. According to the author, it is very doubtful whether catarrhal changes in the tympanum can ever lead to an ankylosis of the malleo-incudal articulation. He describes four forms of ankylosis:

1. Peri-articular connective-tissue ankylosis.
2. Peri-articular bony ankylosis.
3. Intra-articular bony ankylosis.
4. Intermediate forms with intra- and peri-articular changes.

HAENEL.

162. An interesting microscopic condition in the ossicles, which appeared macroscopically healthy and were removed in a

woman, twenty-five years of age, suffering from chronic catarrhal otitis and distressing otitis. The periosteum was found thickened three or four times, and converted into a tough homogeneous membrane where the mucous covering had also become lost. In the medullary spaces of the neck and handle of the hammer there were hyperæmia, infiltration of the medulla with lymphoid and polynuclear cells; osseous resorption, osteoclasts, islands of necrotic bone. The anvil presented similar changes. According to the author, the process is a chronic osteomyelitis of hæmatogenous origin produced by hereditary lues. HAENEL.

163. From ten to thirty drops were instilled into the external auditory canal and left in for from five to ten minutes, during which time the tympanic membrane is slowly massaged with a cotton carrier, thirty strokes to the minute, and then the excess of oil is removed, leaving the membrane and canal hyperæmic. Five cases treated. Three showed decided improvement.

BRYANT.

164. This sign, which is invariably present, is a rhythmical dilatation and contraction of the pupil, appearing as early as the fourth or fifth day. Method:

Place the child's head between the knees of the physician, face upward, with the body of the child supported on the bed, table, or lap of the nurse. Grasp the sides of the child's head with each hand and produce gradual and forcible extension of the head on the spinal column. As the head is brought back in this extension the pupils will be seen to commence to dilate simultaneously with the commencement of extension: the more extreme the extension the more the dilatation. Now on flexion the pupils contract so that when the chin is forcibly brought to the manubrium the pupils are well closed up. This can be done several times a minute, and each time the pupillary phenomenon will be repeated.

BRYANT.

#### NERVOUS APPARATUS.

165. **Oliver.** Right pulsating exophthalmos; ligation of both the right common carotid artery and the left internal carotid artery; accidental traumatism; cure. *N. Y. Med. Jour.*, April 7, 1904.

166. **Bryant.** Tinnitus aurium; etiology. *Ann. of Otol.*, March, 1904.

167. **Weil.** Case of objective tinnitus. *The Laryngoscope*, March, 1904.

168. **Baker.** Deaf-mutes. Report on examination of pupils of the Cleveland School for the Deaf. *Cleveland Med. Jour.*, April, 1904.

169. **Carbone.** Ophthalmoscopic condition in a case of Ménière's disease. *Arch. ital. di otol., etc.*, xv., No. 4.

170. **Panse.** Clinical and pathological contributions. IV. A glioma of the auditory nerve (with four drawings). *A. f. O.*, vol. lxi., p. 251.

165. Fifteen-year-old boy, shot back of right ear, has a thumping noise back of right ear and perceptible thrill. Bruit can be heard over right eye. The ligation of the vessels made no particular permanent difference in the symptoms. Three years after the accident the boy collided with a playmate. The tinnitus began to decrease that same day together with the exophthalmos, and the bruit disappeared on the following morning.

BRYANT.

166. Tinnitus is due to sound vibrations arising outside the ear or originates within the ear; also due to nerve stimuli of uncertain origin, some of them probably very faint sound vibrations. These faint sound vibrations can arise from the normal vital sounds of the body, and movement within the ear or from sound vibrations started by the conduction of other sounds through an impaired conduction apparatus. The stimuli may be reflex or of purely nervous origin, peripheral or central.

BRYANT.

167. A loud systolic murmur synchronous with the heart-beat, varying in intensity, can be heard by auscultation. The hearing is impaired in both ears. Heart, lungs, and chest normal. No aneurism, anæmia, or venous hum in the neck.

Ears, nose, and pharynx, as well as the fundi oculorum, normal. Cause indeterminate.

BRYANT.

168. Emphasizes the necessity of teaching these children to understand the motion of the lips and associate with hearing children in school and at home, in order to counteract their tendency to retire from the world and associate by themselves. The basis of this education is substituting the lip for the sign language. This will make them happier individually and better citizens.

BRYANT.

169. During the various attacks of Ménière's disease from which this patient, thirty years of age, suffered, the author was able to make an ophthalmoscopic examination which always showed distinct congestion of the papillary blood-vessels. He therefore concludes that in this case Ménière's attacks were produced by a hyperæmia of the labyrinth, whose blood-vessels were

in intimate relations to those of the eye through the cavernous sinus. RIMINI.

170. This tumor was situated in the internal meatus. Histologically it was a fibroglioma. The meatus was dilated; the facial nerve was preserved, but the auditory nerve was disintegrated by the tumor, with the exception of a few fibres. There was an atrophy of the spiral ganglion as well as the nerves of the superior portions of the labyrinth. The hair cells of the ampulla were indistinct. Corti's organ showed signs of decomposition. In order to remove such a tumor by operation the internal ear would have to be first resected; the facial nerve could be preserved by laying it bare between the stylo-mastoid foramen to the geniculate ganglion. HAENEL.

#### NOSE AND NASO-PHARYNX.

##### a.—GENERAL PATHOLOGY.

171. **Ingersoll.** A study of the development of the nose and its accessory cavities. *Ann. of Otol.*, June, 1904.

172. **Fischer.** Exanthematous eruptions following throat operations. *The Laryngoscope*, May, 1904.

173. **Lockard.** Platinum rhinitis. *Ann. of Otol., Rhin., and Laryng.*, Dec., 1903.

174. **Fridenberg.** Necessity for supplementary measures after the removal of adenoids. *Arch. of Pediatrics*, April, 1904.

175. **Toerne.** A study of the bacterial relations of the accessory nasal cavities and their protective influence against bacteria. *Nordisk medicinsk Arkiv*, 1904, vol. i., No. 1.

176. **Schmiegelow.** On the relation between diseases of the nose and of the eye. *Archiv für Laryngol.*, vol. xv., No. 23.

177. **Halász.** On nasal infection of the ocular conjunctiva. *Archiv f. Laryngol.*, vol. xv., No. 18.

178. **Carbone.** A study of ocular affections of nasal organs. *Arch. ital. di otol.*, etc., vol. xv., No. 4.

179. **Onodi and Zirkelbach.** On the pathology of anosmia. *Archiv f. Laryngol.*, vol. xv., No. 9.

180. **Lamann.** Additional remarks on my theory of the upper protective system. *M. f. O.*, 1904, No. 6.

181. **Schmiegelow.** A rhinological peculiarity. *Archiv f. Laryngol.*, vol. xv., No. 35.

171. Causes the author to conclude that in man the accessory cavities of the nose are rudimentary structures, because in animals with acute sense of smell the accessory sinuses all contain



olfactory turbinals, whereas in animals not having acute sense of smell the sinuses contain little or no turbinal tissue and their functional activity is lost.

BRYANT.

172. The rash appears on the second or third day after the operation and may be roseolar, erythematous, or papular in type. It generally appears on the neck, chest, and abdomen, but sometimes extends to the face and extremities. It lasts usually two or three days, but even longer. Most cases terminate in desquamation, in some with severe itching before it, with little constitutional disturbance, moderate rise of temperature, except in a few cases. FISCHER concludes that the exanthematous eruption has nothing to do with the operation itself, that the infection evidently took place before the operation, and that the period of incubation might have been shortened through the traumatism.

M. TOEPLITZ.

173. In a photographer, æt. thirty-six, attacks of so-called "hay fever" with hydrorrhœa, sneezing, and lachrymation developed from the work with the popular platinum prints. In the beginning the symptoms appeared only after a sojourn of 30 to 90 minutes in the dark room, and subsided in the open air, but later they occurred within a few minutes and never completely subsided. Temporary improvement took place after cauterization, cocaine, and adrenalin, permanent relief after the abandonment of the paper. Four other cases were also observed; in one, not only the use of the dry paper, but also the use of the platinum toning solution, composed of phosphoric acid and platinum chloride, for the aristo paper, precipitated the paroxysms.

M. TOEPLITZ.

174. Supplementary measures are necessary because the habit of mouth-breathing must be corrected and the habit of nasal breathing must be established, which require careful training of the child. The supplementary correction of nasal defects and irregular dentition are indicated in order that nasal breathing will not require a special effort of the will. Chewing gum is advocated to assist in forming the habit of keeping the mouth closed.

BRYANT.

175. The author has examined 8 freshly slaughtered calves, of which 6 possessed absolutely healthy accessory cavities. In not one of these cases could bacteria be found. He also examined 52 fresh cadavers, of which 16 showed pathological

changes in the accessory cavities. They were examined as soon as possible after death. The antrum of Highmore was opened through the anterior wall, the frontal sinus through the conjunctival sac, so that the face was not deformed. The discharge was investigated on various culture media. In 29 of the 36 cadavers, the maxillary antra and frontal sinuses were sterile. In 7, bacteria were found in one or more. In 22 cases, which were examined not later than 2 hours and 20 minutes after death, bacteria were found. In the other 14 cases, no relation to the elapsed time was evident.

We may therefore assume that in the living the frontal sinus and maxillary antra are normally free from bacteria, and that the invasion of bacteria occurs several days after death. These investigations have shown that the post-mortal invasion takes more quickly into the maxillary antrum than into the frontal sinus, and that the bacteria encountered were usually those found in the nose. In two cases the cavities contained mucus which had probably found its way after death. In the other 14, diseased conditions were present in 28 accessory cavities; 11 of these were affected only with a catarrhal inflammation, in 9 without bacteria; in 2, bacterium sputigenes and micrococcus were present. In 14 cavities containing purulent mucus and chronically inflamed mucous membrane, bacteria were found in 11, and of 8 different varieties. It is remarkable that in 3 cases the bacillus mellodorifer and in 2 the bacillus vulgaris were found, whose growth is arrested at 34° C. It seems, therefore, likely that the temperature in the accessory cavities does not rise above 34°. In 3 cavities an acute purulent sinusitis was found present in a cadaver where croupous pneumonia had existed. In cases of pulmonary tuberculosis 23 per cent. showed changes of the accessory cavities, 31 per cent. where other affections of the respiratory tracts were present, and 14 per cent. without any changes.

Of the various bacteria found there seem to have been 3 new species: micrococcus pseudo-catarrhalis, micrococcus tardeli-quans, and bacillus mellodorifer.

Finally, the author has collected the various bacteria found in the accessory cavities in two tables.

Details about the technique, which was very carefully followed out in order to avoid accidental infection, must be read in the original.

JOERGEN MOELLER.

176. 63 patients with accessory-sinus diseases showed complicating eye diseases in 17: epiphora, blepharo-conjunctivitis, ciliary neuralgia, severe orbital pain, convergent strabismus, dislocation of the eyeball, peribulbar abscess, with paralysis of the orbital muscles and amaurosis. The various ocular diseases are described, especially in regard to their rhinogenic origin, with the aid of cases quoted in literature and personal observations, such as rhinogenic neuralgia in and about the eye, supra-orbital neuralgia, cystic swelling of the anterior ethmoidal cells with dislocation of the eyeball, endothelioma in the right superior maxilla with paralysis of the external rectus. The details must be read in the original.

ALBANUS.

177. A case is reported where pus reached the conjunctiva from an inflammation of the maxillary sinus which had perforated into the lachrymal duct and had caused a conjunctivitis with corneal ulcers. As the suppuration in the sinus improved, the ocular affection disappeared. Opposed to the results of other experimenters, the author believes that the conjunctiva finally loses its power of resistance against purulent invasion.

ALBANUS.

178. In this paper the ocular affections are described which are often associated with nasal disease.

RIMINI.

179. The published cases of anosmia are grouped according to Onodi as follows:

1. Essential or true anosmia.
2. Mechanical or respiratory anosmia.
3. Functional anosmia.

Results are given of numerous investigations from clinical patients usually with nerve diseases with the aid of Onodi's apparatus (qualitative examination) and with Zwaardemaker's instrument (quantitative examination). The authors are going to continue their clinical investigations and undertake some pathological examinations of which very few have at the present time been made.

ALBANUS.

180. This is an extension of the theory previously published on the erectile bodies of the anterior and posterior ends of the lower turbinals, on the soft palate, the epiglottis, and on the lateral ventricular folds of the larynx.

PIFFL.

181. A man thirty-five years of age was able to bite his own nose by protruding his lower jaw so that he could grasp the tip of his nose between the upper and lower teeth.

ALBANUS.

b.—SEPTUM.

182. **Mueller.** On the technique of Krieg's window resection. *Archiv f. Laryngol.*, vol. xv., No. 26.
183. **Zarniko.** On the window resection in septal deviations. *Archiv f. Laryngol.*, vol. xv., No. 19.
184. **Menzel.** On window resection of the deviated nasal septum. *Archiv f. Laryngol.*, vol. xv., No. 3.
185. **Hajek.** On Krieg's window resection. *Archiv f. Laryngol.*, vol. xv., No. 2.
186. **Spratt.** The removal of septal spurs and the correction of deviations of the septum by more rational methods. *Amer. Med.*, May 7, 1904.
187. **Coolidge.** Deviation of the nasal septum. *Boston Med. and Surg. Journ.*, May 5, 1904.
188. **White.** Resection of nasal septum. *Boston Med. and Surg. Journ.*, April 21, 1904.
189. **Quinby.** A factor in the etiology of distorted nasal septa. *Med. News*, March 12, 1904.
190. **Shubbs.** A modification of the Krieg operation for deviated septum. *Annals of Otology, Rhin., and Laryng.*, Dec., 1903.
191. **Freudenthal.** The septum narium in aborigines and the cause of deviations of the septum in general. *The Laryngoscope*, March, 1904.

182. The author has performed 165 window resections during ten years and is convinced of their universal utility. Since the introduction of adrenalin no after-hemorrhages had occurred. The author does not introduce any packing. It is especially necessary to make the incision of the mucous membrane and periosteum sufficiently large. Preservation of the mucous membrane on the convex side is of no advantage. Post-operative deviations may result when not enough has been removed at the operation. The operation is often followed by an improvement of the external form of the nose. The bridge of the nose may sink in if the adjacent part of the cartilage or the interior lower margins of the septum are injured.

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183. The author states that Killian, as early as the 71st meeting of the German Naturalists and Physicians in Munich, recommended preservation of the mucous membrane on the convex side in the window resection. In the author's experience a large flap of mucous membrane does not need to be sutured. Packing is also unnecessary. A case of post-operative deviation of the septum was observed due to the suction of the left nasal ala to the septum. The negative air pressure forced the movable septum into the left half of the nose.

Recovery after the use of a rubber tube and Schmidthuisen's ring. A similar experience in a second case. In this Feldbausch's prothesis was employed.

ALBANUS.

184. MENZEL. In order to abbreviate the period of healing, and to prevent the usual disturbances of secretion, the author has preserved the mucous membrane on both sides of the septum in the operation of deviated septum practised in Hajek's Dispensary. Instead of three incisions, one incision is made on the inferior edge of the septal cartilage made prominent by the finger. In most of the fifteen cases reported the anterior margins of the septal membrane were sutured with two or three threads and packed on both sides. Recovery usually took place by primary union after six to ten days, rarely fourteen days. In order to avoid a deformity of the nose, the supporting septal cartilage directly underneath the bridge of the nose should be preserved to a distance of  $1-2\frac{1}{2}$  cm.

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185. A report of 100 cases operated on according to Krieg's method; 35 were re-examined after 1-2 years. The results were good even in the difficult cases. The former inconvenience of a large raw surface on the convex side was removed by preserving the mucous membrane, though the operation is thereby made more difficult. The new septum often shows partial deviations. In an S-formed septum, a right-sided deviation may be converted into a left-sided one by operation if too much of the bony frame is removed.

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186. SPRATT advocates the "flap operation," as he calls the Krieg operation, for the removal of spurs and deviations. He dissects a large triangular flap of mucous membrane, removes the cartilage in layers by means of a chisel 16 cm long, with a cutting edge 6 mm to 8 mm wide, and a shank, directly back of the blade, 1 mm by 3 mm. In removing spurs with broad bases or at the junction of the septum with the nasal floor, he uses a small gouge. If the spur advances to the bony portion, the chisel cuts through with light taps of a mallet. If in addition to the spur there is considerable deviation, the mucous membrane of the opposite side is separated and the whole thickness of the cartilage or bone is removed.

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187. COOLIDGE removes, where there is a perpendicular cartilaginous angle on the obstructed side, a piece of cartilage from its whole length without injuring the mucous membrane on the



concave side. He uses a steel cylinder sharpened at one end, then introduces a saw along the floor of the obstructed cavity and cartilage separating it from the vomer and the maxillary spine by cutting obliquely upward through the septum. The free lower edge of the cartilage can then be forced over the free upper edge of the vomer into the concavity of the opposite side, where it overlays and maintains itself in position.

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188. A vertical incision, just anterior to the deflection, is made with special knives, one with the blade placed parallel to the handle, while the other is at right angles. The blades are guarded, cutting only 1.5mm deep. The mucous membrane with its perichondrium is dissected by an instrument with large handles and blades at an angle of 135°, which are respectively 5 and 9mm wide, thin, and have rounded edges. The guarded knife incises the cartilage, the smaller dissector is inserted, the concave mucous membrane is pushed away, and the denuded cartilage removed by cutting forceps, aided by rongeur, alligator forceps, chisel for bone ledge, and ring knives for small fragments. The flap is then stitched back.

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189. A young girl developed during her eleventh year a tendency to mouth-breathing. There was a decided deflection of the cartilaginous septum. The left plate of the vomer was bent outward at its posterior end and was not in articulation with the palate bones in the central line. The second dentition was well advanced. The inherited triangular teeth had come in irregularly. The two lateral incisors had their inner edges rotated backward and the whole tooth carried inward, until it was overlapped by the central incisor fully one-half its width. The alveolar arch was broadened by separating the maxillary bones. A band was placed about the second bicuspid and first molar of each side. Pressure was made by means of a small jack-screw upon the two bands, light at first, but slowly increased. In two weeks the central incisors had been separated a little over an eighth of an inch. Soon after the breathing became more free through a marked decrease in the flexion of the cartilage. The bending of the septum was due to imperfect articulation and undue vertical pressure from the developing maxillary bones.

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190. SHUBBS makes a vertical incision along the entire anterior edge of the triangular cartilage or side of convexity, separates

the muco-perichondrium with a small—curved on the flat—elevator over the convexity and concavity, then cuts out the cartilage and, if necessary, the bone with an alligator or fenestrated cutting forceps and stitches the linear incision. In removing spurs, Shubbs also preserves the mucous membrane by separating it beforehand.

M. TOEPLITZ.

191. FREUDENTHAL has examined 1164 crania at the American Museum of Natural History in New York, coming from aborigines from all over the American continent (British Columbia, Mexico, Arizona, Colorado, Montana, Peru, and Bolivia); 350 were excluded; of the remaining 814, more than one-third, 264, had all varieties and shapes of disfigured septa, most numerous in the anterior part of the bony septum, next in the middle part, very rarely in the posterior. The cartilaginous portion was preserved in very few instances. S-shaped deviations were frequent. Exostoses and fractures were also noticed.

M. TOEPLITZ.

#### C.—OZÆNA.

192. **Doebeli.** On the formation of the discharge in ozæna. *Archiv f. Laryngol.*, vol. xv., No. 10.

193. **Tarnowski.** Ozæna healed by Behring's anti-diphtheritic serum. *Deutsch. med. Wochenschr.*, No. 23, 1904.

192. The various views on the etiology of ozæna are discussed. In noses which had been cleaned, in seven cases the formation of crusts was examined from hour to hour with a microscope. In all cases leucocytes formed the greater part of the discharge, including a few "mast-cells." Squamous epithelium at first rare, later more numerous. The author is undecided why the nasal mucosa allows a more rapid migration of leucocytes, and is inclined to agree with Cholewa and Cordes as regards the etiology, viz., a primary rarefying otitis of the nasal turbinals—in other words, an inflammation directly underneath the atrophic mucous membrane. Macroscopically a thin layer of mucoid was first observed, then increasing white patches, finally white membranes were formed. One case was examined bacteriologically and showed the presence of the staphylococcus aureus and the bacterium Friedlander in pure culture.

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193. After having read Dr. Neufeld's article on chronic diphtheria, the author reports upon three cases of ozæna which he

believes to have been cured by injecting diphtheritic anti-toxine. In the first case the first injection was successful, in the second it required two. In the third case, which had existed for forty years, numerous injections only produced a partial cure. Though the formation of crusts had ceased, the sense of smell did not return.

NOLTENIUS.

d.—TUMORS.

194. **Cozzolino.** Melanosarcoma of the nasal mucous membrane, with investigations on the origin of melanotic pigment. *Archiv f. Laryngol.*, vol. xv., No. 6.

195. **Johnston.** Sarcomata of the nasal septum. *The Laryngoscope*, June, 1904.

196. **Watson.** Sarcoma of the nasal passages. An inductive study, based on the records of 150 cases. *American Medicine*, April 2, 1904.

197. **Ingermann.** Primary epithelium of the nasal fossæ, with report of a case. *Annals of Otol., Rhin., and Laryng.*, Dec., 1903.

198. **Toeplitz.** Nasal syphilitic tumors. *American Journ. Med. Science*, May, 1904.

194. A priest fifty-eight years of age suffered from occlusion of the right half of the nose, a dark purulent discharge, occasional neuralgia about the forehead and orbit. On examination the right half of the nose contained a dark tumor which was also visible post-rhinoscopically. The tumor appeared like a so-called melanotic polypus, but microscopic examination showed it to be a melanosarcoma. The tumor was radically removed; the base was destroyed with a thermo-cautery. Relapse after one month. Extension of the tumor. Resection of the maxillary without avail. Death from sarcomatous cachexia. Histological description with illustrations should be read in the original. As regards the origin of the pigment, the author is inclined to regard it as of hæmatogenous origin. The iron reaction was positive.

ALBANUS.

195. There are now about sixty cases of sarcoma of the nasal septum among 178 cases of intranasal sarcomata on record. JOHNSTON reports a well-observed case in a woman, aged seventy years, with complete nasal obstruction. She had first noted a small swelling above the left clavicle, then counted nine such swellings in front of the left ear. Later on, all anterior and lateral cervical glands were enlarged. In the left nostril the normal opening was completely blocked up by a large mass, which was attached to the septum from roof to floor. A removed specimen

was made up almost entirely of round and spindle cells. Upon partial removal the growth rapidly recurred. The nose became swollen on both sides, the swelling on the left extending under the eye, involving the lid and the lachrymal apparatus. The face assumed the "frog-face type." The axillary glands grew to the size of pigeon eggs. Death. Autopsy: The lower pulmonary lobes contained an excessive amount of fluid, the apices scars of healed tuberculosis. The tumor extended on the left side over the superior maxillary bone. The growth began in the cartilage or the mucous membrane of the septum of the left side. Sarcomatous degeneration of the glands was found, but no metastases in internal organs. Seventy-one cases are tabulated, briefly analyzed, and a complete bibliography up to 1899 is appended.

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196. WATSON gives the histories of four cases, which he includes in the 150, upon the report of which the paper is based. CASE I was seen in a boy of ten, whose left nostril was occluded by a pedunculated mass attached to the anterior portion of the inferior turbinate. It was a typical small-celled sarcoma with large vascular spaces. No recurrence took place in two years after removal. CASE II. was in a girl of ten with stenosis of the left nasal passage and external deformity, widened bridge, and prominence of antral region. The firm growth extended to the posterior naris and was attached to the outer wall; the septum was pushed to the right. The growth was removed from the left naris and maxillary antrum through the almost completely destroyed nasal wall. Fibrosarcoma. No recurrence in one and one-half years. CASE III., a woman, æt. forty-three, had recently two attacks of erysipelas with obstruction of left nasal fossa, noticeable protuberance of the left side of the face and nose, slight exophthalmus, and displacement outward of the left eye. The fibrosarcoma was removed intranasally. The retardation of the growth was possibly due to the erysipelas or pregnancy and lactation. In CASE IV. a boy of ten, a growth of the size of a walnut, obstructing the left nostril and attached by pedicle to the quadrilateral cartilage, a round-celled sarcoma, was removed by the cold snare. No return in several months. Watson analyzes the 150 cases on record, discussing the different varieties, their microscopic and gross appearances, whether pedunculated or sessile, their point of origin and extent, consistence, causes, occurrence, more in youthful life, prevalence in

the female. He denies the transformation from the benign into the malignant growth. Metastases are rare. The percentage of recoveries is 54.68 by intranasal operations, 39.58 by radical external operation; he favors the first method. Improvement takes place in three out of four cases after ligation of the external carotid. A bibliography is appended.

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197. The total of all reported cases of primary nasal carcinoma is between sixty and seventy; only one of change from a benign into a malignant form has been proven. The original seat of the carcinoma in the nasal fossæ differs according to the authors. INGERMANN relates a case of a man, fifty-eight years old, who was affected in the nose after the scarlet fever. He noticed in the left nasal fossa a pimple, had acute pain, dropping of sanguinolent secretion, but free nasal breathing. On the lower part of the septum, not far above the junction of the skin and mucous membrane, a tumor  $\frac{1}{2}$  cm high, 1 cm wide, and 2 cm long was located. It was of dark red color with an ulcerated surface. Microscopically it was an epithelioma with numerous cell nests, multiple mitoses, squamous epithelia of different shapes, and onion-like forms of concentrically arranged cells. The tumor was removed with scissors and snare, curetted in its entire base, and part of the surrounding healthy tissue and the operated surface cauterized with chromic acid. No recurrence took place in six months.

M. TOEPLITZ.

198. TOEPLITZ observed a case of a syphiloma in a woman, aged twenty-six years, who suffered from obstruction of the left nostril, formation of thick crusts, loss of sense of smell, and severe epistaxis. The left nostril was obstructed by a large movable tumor, which was removed piecemeal with the cold snare under extreme hemorrhage. It sprang from the upper boundary of a large perforation of the septum, through which the tumor disappeared into the right nostril. The histological examination expressed a suspicion of sarcoma. The urine contained bacilli resembling tubercle bacilli; the sputum was negative. Anti-syphilitic treatment cured the nasal lesion, but was continued for an annular stricture of the rectum, along which a syphilitic neoplasm still remained.

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*(To be concluded.)*